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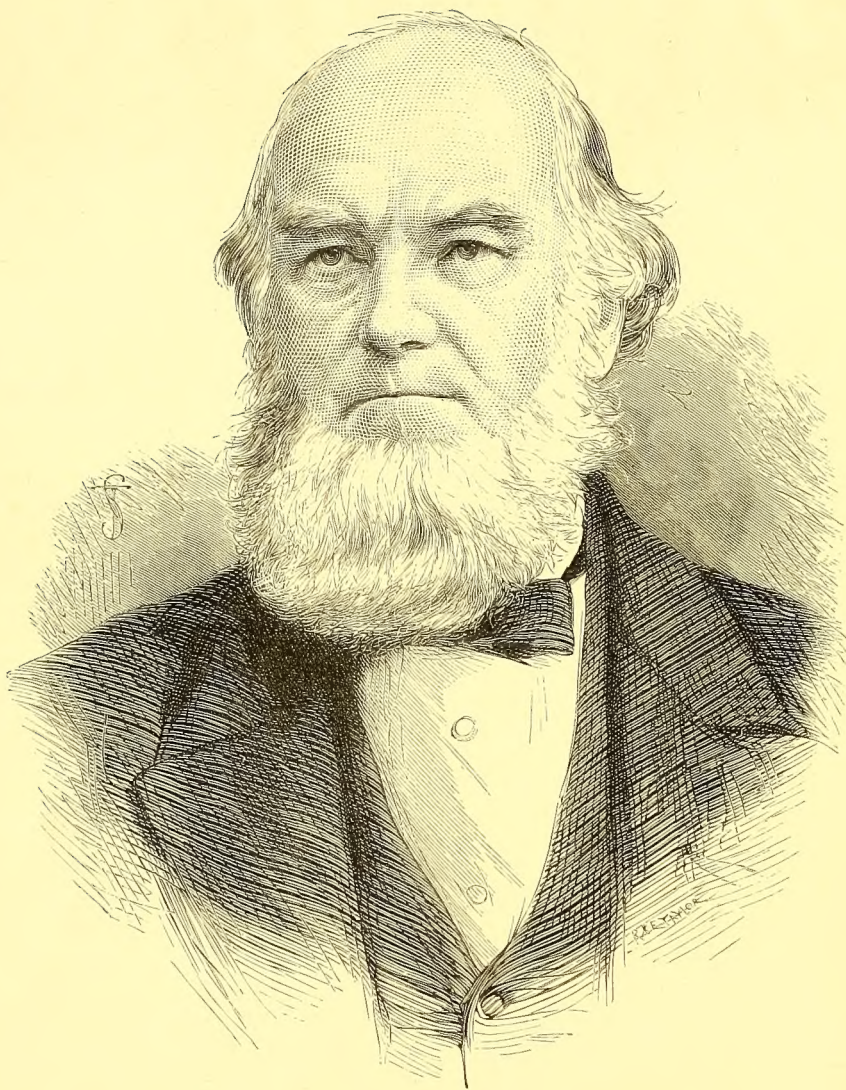
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JOHN GIBSON.



MASSACHUSETTS
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OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, F.L.S., Author of "*Alpine Flowers*," etc.

"You see, sweet maid, we marry
A gentle scion to the wildest stock
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature change it rather.
The art itself is nature."—*Shakespeare*.

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JOHN GIBSON.

FEW horticulturists were better known or respected than John Gibson, and few will be longer remembered. To him we are chiefly, if not wholly, indebted for sub-tropical gardening, which was so well carried out by him in Battersea Park. He also laid out the ground for the great International Exhibition of 1866, and was often consulted on similar matters on subsequent occasions; indeed, in artistic arrangements and in decorative gardening generally he was largely employed. Mr. Gibson was born June 18, 1815, at Eaton Hall, Cheshire, where his father was gardener to Sir E. Antrobus, in whose gardens he worked until about 1833, when he went to Chatsworth, and was apprenticed to Mr. (afterwards Sir Joseph) Paxton. After being there about a year he was sent to Wentworth to study the cultivation of plants under Mr. Cooper, with whom he remained a season, and then returned to Chatsworth. Soon afterwards he was sent by the Duke of Devonshire to India to collect plants, and especially to bring over the *Amherstia nobilis*. The success of that mission is best exemplified by the many beautiful plants he introduced, some of which were figured in Paxton's *Magazine of Botany* and other botanical periodicals. Besides collecting and importing 50 new species of *Dendrobium* and many other plants, the following may be mentioned as amongst the most valuable, viz., *Amherstia nobilis*, *Rhododendron Gibsoni*, *Rhododendron Paxtoni*, *Æschynanthus grandiflorus*, *Æschynanthus Roxburghianus*, *Thibaudia setifera*, *Thibaudia glauca*, *Thibaudia coccinea*, *Saccolabium calceolare*, and others. Lord Auckland having been appointed Governor-General of India, arrangements were made that Mr. Gibson should accompany him, and take charge during the voyage of a large collection of medicinal plants destined for the Botanic Gardens, Calcutta. A start was made September 21, 1835, in H.M. ship *Jupiter*. A short stay was made at Madeira to enable visits to be paid to certain gardens of note there.

Calls were also made at the Cape and elsewhere, Calcutta being reached in March, 1836. Here Mr. Gibson was introduced to Dr. Wallich, with the view of arranging the districts which it would be most advisable to explore, means of transit, &c.. Preliminaries having been settled, a start up country was made on July 5, 1836. The journey was not a pleasant one, his life being frequently in danger and provisions short. On arriving at the Khasya Hills, work was commenced in reality as soon as the weather would permit, and the first collection of plants was sent off August 17, 1836. By the end of December, 101 baskets of plants, generally Orchids, had been forwarded to Dr. Wallich at Calcutta, by whom they were sent on to England; and in addition to these a large collection of tree and other seeds was also sent home. On returning to Chatsworth, Mr. Gibson had charge of the exotic department.

In 1849 he was appointed superintendent of Victoria Park, some portions of which he designed and carried out, particularly around the lake and on the Pagoda Island. In 1850, Greenwich Park was placed under his superintendence, and in 1856 the formation of the shrubberies and planting at Battersea Park, then in a very rough state, were further added to his duties, until August, 1857, when he was appointed superintendent, and shortly after that Kennington Park, Chelsea Hospital, and the Military Asylum Grounds were added to his duties. In April, 1871, he was appointed superintendent of St. James's, the Green, and Hyde Parks, and Kensington Gardens, &c., a post he held until shortly before his death, which took place early in 1875. Mr. Gibson is best known to the present generation of gardeners by his bold break into the common system of "bedding out" by the introduction of fine-foliaged plants, the use of which he had previously studied in various Continental gardens. His skill in selecting and arranging the various kinds used was widely admitted. The tenderness of many of the plants, and the fact that few had such means and such a situation for growing them, prevented the system from extending much, but its teaching cannot be lost, and it was a decided step onwards in the art of gardening. He made Battersea Park more interesting, so far as the space went, than any public garden near London, and no ordinary man could have done it. His death, long before so strong a man should have done his work, was a serious loss to horticulture. Our personal knowledge of him was long and most agreeable, and we can say that with men of his stamp the influence of our public gardens would be effective for good.



THE GARDEN.

VOL. XIX.

GARDEN THOUGHTS.

Close by my door stands a hero, so handsome and so brave, that the face smiles and the heart is refreshed to look on him. While the army to which he belongs is in full retreat, or under canvas, he remains, in his bright uniform of green and gold, defiant. While the other ships of the fleet are driven with bare poles to and fro by the winds, he walks the waters like a thing of life, full sail, "dressed" with all his flags and pennants, and with joyful music on deck. He is 20 ft. high, and his name is Jasmine. What a gracious gift in our dreary season of decay, like a child's laugh in a dull company, or an examiner's nod when one is "up for degree!" What a fountain of golden glory to make our desert smile! No home should be without these flowers—which

Twinkle to the wintry moon,
And cheer the ungenial day—
without *Jasminum nudiflorum* on its walls.

It comes to us so silently, unexpectedly, unostentatiously in its beauty, like true charity. It is the brother born for adversity, who enters unheard the darkened room, and puts his hand upon the shoulder when the head is bowed down by sorrow, and says, Let me share and help. I was told in the Riviera that not long ago a young English gentleman came to Cannes, having a letter of credit for £500 given to him by his father, that he might travel for a year, that he went, "just for the fun of the thing," to that satanic institution, the gambling house, at Monte Carlo, and in two or three visits lost all. In the same hotel there was staying at the time a rich manufacturer who had rather a full-flavoured Lancashire accent, who occasionally joined plural nominatives with singular verbs, and sometimes went in pursuit of fugitive Peas with his knife. The younger man had made merry with his friends with little restraint or consideration concerning these idiosyncracies, but now his mirth was gone. It was piteous to see his miserable degradation and despair, and the rich man (as my informant reported) heard from an adjoining bedroom his sighs and prayers. One night he knocked at his neighbour's door, walked in, and said, "Now,

youngster, it's my turn to laugh, but I've been a fool myself, and I've a lad about your age, and, to cut it short, I'll tell you what I'll do. If you'll give me your word of honour never to gamble again, and put down on a bit o' paper how much them thieves have got, I'll give you a cheque for the brass. You can pay it back to me or to mine if ever you're flush o' cash." So was the winter of his discontent made glorious summer by the red rose of Lancaster; so when his home was dark and desolate, the Jasmine made it glow with gold.

As charming and as cheerful, with the further claim on our admiring love that it is evergreen, the *Mespilus spinosa*—"the prickly Medlar with an Almond leaf"—which we know best as *Pyracantha*—should find a place for its glossy foliage and fiery fruitage on our walls. Though it is most effective upon stone—now framing beautifully with its scarlet berries one of the windows of my church—it is attractive everywhere, not excepting shrubberies, "always providing," as is sagaciously remarked by an old writer, "that the berries be not eaten up by birds."† On either side of the *Pyracantha*, when grown upon a brick wall, I commend the introduction of variegated Ivies, those especially which have the silver leaf.

The *Cotoneaster* of Simmonds and the *Honeysuckle* of Japan must, of course, be in every garden, and in a genial season may, when grown side by side on a wall, vie with the *Pyracantha* and silver Ivy in their contrasted beauty. But we don't have genial seasons, and Simmonds and *Lonicera* look usually at this time of year as a married couple who have had a serious quarrel, and *Mespilus* and *Hedera* like two lovers who are most delectably "engaged."

There are persons who are wishful to improve upon Providence, and who, taking a good deal of rest themselves, do not like to see it in other departments, and these say, I hate deciduous plants (forgetting that "we all do fade as a leaf"),

* Miller's "Gardener's Dictionary."

† Hanbury's "Gardening."

and I will not have them on their walls. And there are some who cry, I have lost my Magnolias and my Roses so often, that I cannot incur the peril and disappointment. But give me the gardener who, like the husbandman, hath long patience, and thankfully watches his children's sleep; and give me the love which sighs, in the memory of its deep happiness, 'tis better to have loved and lost than never to have loved at all." And, therefore, let us have our *Wistaria sinensis*, though it never can attain in our climate the amplitude of loveliness which seems almost to weigh down its branches in the sunnier south, and though it sheds its foliage awhile. Let us protect our Magnolias, though even then the bitter frost will maim and discolour, and though at best they are but as branches and offshoots compared with the glorious timber trees which we see in France and Italy. Let us replant our white and yellow Banksian Roses and our magnificent Maréchal Niel, though they be (twice, at most, in a lifetime) "kilt dead."

And, à propos of climbing Roses, there must be a sentence of special praise—

Yet one I would select from that proud throng—

concerning Fortune's Yellow. This Rose was introduced by Mr. Fortune from China many years ago, and though its merits were recognised to some extent, it was not cherished with the careful cultivation which it so well deserved, and, being generally regarded as unsuitable for our climate, became almost extinct. I do not know, nevertheless, a Rose tree which produces, when once established, a more abundant supply of beautiful Roses. It should have a place in every Rose house or conservatory, and also on walls having a southern aspect, and not in an exposed situation. You may cut baskets of its pink and yellow blooms daily and week after week when it has found a happy home.

I should be glad of the opinion of more experienced brothers* as to the relative merits of the *Ampelopsis* (prettily so-named from its Vine-like growth), introduced by Mr. Veitch, and the creeper from "Old Virginny." My own observation has inclined me to think that the latter has greater depth and richness of colour, but I have seen it in much the more favourable positions. There is an old church at Lincoln, for example, which is half covered with its crimson glory.

And why are not more of our churches thus beautified? "The Ivy-mantled tower" may be open to objection, such as stoppage of spouts and multiplication of "sparrows, but many an ugly building would lose its ugliness, and many a fair edifice would be fairer, like a bride in her bridal garment, if the walls were clothed with the glowing berries, the shining leaves (let us not omit *Escallonia macrantha*), the sweet flowers which I have named with *Clematis* and *Honeysuckle*, *Jasmine* and *Rose*.

S. REYNOLDS HOLE.

The Winter Heliotrope (*Tussilago fragrans*).—Amongst winter flowers this is one of the most reliable. We use it as a carpeting plant for banks and other positions under trees when little else will grow; its foliage looks well at all times of the year, and at this time its deliciously-perfumed flowers are very useful for indoor decoration. It is a vigorous grower, and when once planted will take care of itself. I find those clumps that are planted under the shelter and shade of mixed evergreen and deciduous shrubs the best, as the flower-spikes draw up a good height, and the blossoms are better coloured than when fully exposed; in fact, its proper place is as a carpet under trees where the shrubs are thin.—J. GROOM.

* The "Garden Thoughts" of others would be acceptable to the author of these papers, and would be repeated with his own, so far as they seemed to have some special interest. Address, Cauntton Manor, Newark.

NOTES OF THE WEEK.

The Choco Plant at Kew.—In the Cactus house there is now a fine fruiting plant of *Sechium edule*, a Cucurbitaceous plant, a native of the West Indies, where it is called Choco, and is cultivated for the fruits, which afford an article of food. Like plants of a similar character, it has slender twining stems and large leaves. The fruits on the Kew plant are now about the size of a Cocoa-nut, which is about their full size. They are oblong and of a pale green colour, and have a deep indenture at the apex. They are imported and sold in this country under the name of Chayotes. In Covent Garden Market there is now an importation of these fruits from St. Michael's.

Cyrtanthus Mackeni.—A few weeks ago we had occasion to allude to *C. lutescens*, a beautiful congener of the present species, from which it differs conspicuously in the colour of the blossoms; in *C. lutescens* they are pale yellow, while in *C. Mackeni* they are pure white—hence the most desirable for cultivation. The blossoms, long, narrow, curved tubes, about 2 in. long, are produced in umbel-like clusters of from six to nine on slender stalks about 9 in. high. They are sweetly-scented, which adds greatly to their value as decorative plants. All the species are of easy culture in a warm greenhouse, and as they flower plentifully for some weeks in succession during autumn and winter they are well worth growing for cutting purposes alone, for which purpose they are specially suitable.

Solanum venustum.—We are often asked to recommend a beautiful stove-climbing plant which would yield a plentiful supply of cut flowers during winter. Here is one that is well suited to the purpose, being a vigorous grower, requiring very simple culture, and never failing to produce an abundance of flowers in continuous succession for several months. The blossoms somewhat resemble those of the common Potato, but are of a delicate mauve colour, and borne in dense clusters on slender twigs, a circumstance which causes them to droop gracefully. In the Palm house at Kew there is a large specimen trained to a pillar now in flower, and it attracts the attention of almost every visitor. The plant is procurable at the large nurseries, and may be easily propagated by means of cuttings.

Large Acacia dealbata.—In the garden at Rickerby we learn that there is a remarkably fine specimen of this beautiful Australian shrub in full flower, and will probably continue in good condition for a fortnight hence. The specimen is 16 ft. in height and about 28 ft. through. It might be interesting to know the conditions under which such a fine plant has been grown, whether planted out in free soil or in a pot or tub, and to what condition of temperature subjected. Even in a small state this *Acacia* is a highly desirable plant, and we recommend all who do not possess it to add it to their collection, as it cannot fail to give satisfaction.

Bomarea oligantha.—The few kinds of *Bomarea*, or *Alstroemeria*, as they are sometimes called, that are in cultivation requiring greenhouse treatment have much to recommend them, for their flowers are showy, and they seem to be almost perpetual flowerers. At Kew, in the cool part of the Cactus house, there are some four kinds trained to the sides of the house. Of this, *B. oligantha* is now very attractively in flower, a condition in which it has been nearly all the year round. It is a twining species with slender stems, each of which bears at its apex an umbel-like dense cluster of showy flowers, which are deep orange, prettily and copiously spotted with deep brown or chocolate. Planted out in a bed of good soil, it is very free in growth and flower, and is a capital plant for growing in a greenhouse, trained, in a light position, to a wall or partition.

Luculia gratissima.—Among winter-flowering plants in Mr. B. S. Williams' nursery at Holloway, few are more attractive than this beautiful Nepaulese shrub, quantities of which are grown in small pots. These plants have produced remarkably fine heads of rosy-pink blossoms, and, being deliciously perfumed, are specially adapted for indoor decoration.

Acacia platyptera.—Among the earliest to flower of the vast number of species of *Acacia* in the temperate house at Kew is this old, but little-known kind, now gay with golden blossoms, arranged on the edges of its singular flat branches, that rise to a height of from 4 ft. to 5 ft., and hence distinct from the majority of the other kinds. Another early-flowering kind is *A. retinodes*, which, though not so showy as the preceding, is desirable on account of the profusion with which its sulphur-yellow blossoms are produced all along the slender twigs. Both are of easy culture in pots in an ordinary greenhouse.

Large Italian Bouquets.—The principal objects of attraction lately at the Horticultural Company's floral dépôt, Warwick House, Regent Street, have been some large bouquets of flowers,

which had been sent there direct from Italy. They consisted chiefly of white and striped Camellias, Neapolitan Violets, common *Ageratum*, *Skimmia japonica* berries, and one or two other kinds of berries which we did not recognise. These bouquets were Mushroom-shaped, and, being about 2 ft. across, it must have required skilful manipulation to adjust the flowers, as those of each kind were arranged so as to form a portion of a geometrical design, which, though it had a formal appearance, was novel and attractive. Each bouquet was surrounded by a row of leaves of the Loquat (*Eriobotrya japonica*), twigs of Conifers, and other evergreen shrubs. The floral display altogether at this establishment has been lately remarkably fine and very extensive. The windows are adorned with a great variety of plants, including choice Orchids, and arranged very tastefully. The interior of the building is also very attractive, particularly the rockeries and groups of plants. The various kinds of fruits and flowers, artificial as well as natural, combine to render this establishment a very attractive one to lovers of both flowers and fruits.

White-flowered Eranthemum (*E. albidiflorum*).—If this plant, which we saw the other day in flower at Kew, were grown in a similar manner to the more popular blue-flowered kind, it would probably prove a useful plant, as it continues a long time in flower. The Kew specimen is about 15 in. high, and has large leaves of a deep green hue, which form a fine contrast to the large, branching clusters of pure white flowers which terminate the branches. Though small, the blossoms are produced in great numbers, a circumstance which amply compensates for their small size. It is a free growing plant, and one which will doubtless some day be generally cultivated.

Flowering Agaves at Kew.—Among the most attractive plants now in flower in the Palm house at Kew are two huge specimens of about equal size of *Agave attenuata* var. *glaucescens*, which for some weeks past have been developing fine flower-stems. They are thick and woody, about 6 ft. in height, and are terminated by a head of fleshy leaves of a bluish-grey tint. The flower-stems arise from the centre of the crowns to a height of about 9 ft., and are gracefully arching. The flowers, which are of a yellowish-green colour, are disposed thickly in a bottle-brush-like manner over the whole length of the stem, and the long protruding stamens, tipped with yellow anthers, relieve, as it were, their otherwise rope-like appearance. A fine specimen also of the rare *A. Hookeri* is in flower, but it is not nearly so attractive as the preceding, which are indeed among the noblest of the American Aloes.

Presentation to Mr. Peter Grieve.—We recently announced the retirement of Mr. Grieve from the post which he has so long held as gardener at Culford Hall, and stated that it was proposed by his friends to present him with some tangible mark of the esteem in which he is held in the neighbourhood in which he has resided for nearly four and thirty years. Though no special efforts were made to swell the subscription list, the proposal was heartily received, and the willing contributions of upwards of seventy subscribers placed the committee in a position to provide a really handsome testimonial, consisting of a valuable gold hunting lever watch and a drawing-room timepiece with a pair of candelabra *en suite*, together with a very chaste silver cake basket for Mrs. Grieve. The watch bore the following inscription on its inner case: "Presented to Mr. Peter Grieve, by a number of his friends, as a token of their regard, on the occasion of his leaving Culford. August, 1880." We may add that Mr. and Mrs. Grieve have also received other testimonials from the householders of Culford, and from the gardeners who have worked under him in the Hall gardens.

White Czar Violet.—I noticed a bed of this Violet in Messrs. Lee & Sons' Feltham Nursery in full bloom this day (Dec. 29). In growth and flower it very much resembles the Czar, but differs from that well-known Violet in the colour of the flowers, which are pure white. As most of the single white Violets are such bad growers, we look upon this as a good addition to our collection. It is not a new variety, but seems little known. When better known no doubt it will be cultivated largely, as white flowers are much in demand in the London and other markets at Christmas.—D. T.

We have to record the death of Mr. Parsons, long gardener at Danesbury, near Welwyn. Mr. Parsons was a member of the Floral Committee of the Royal Horticultural Society, a judge at the Regent's Park shows, and otherwise well known to a wide circle of horticulturists. He died on Christmas Day.

Mr. JEAN SISLEY, of Lyons, informs us that a Mons. Dumesnil, of Rouen, is growing plants to a large extent without soil.

MESSRS. VEITCH announce a "Manual of the Coniferae," with numerous woodcuts. It is certain to be of much interest to all who study these plants. It will be ready in March.

THE FRUIT GARDEN.

OUTDOOR GRAPES.

"PEREGRINE" says, "that it is a fact beyond all cavil that Grapes can be ripened on walls out of doors in the south of England, and even in the midland counties." Yes; I have seen as good Grapes on the walls of buildings in the midland counties as I have seen in Surrey; in fact, the best Grapes I ever saw on walls were ripened on a farmhouse in the midland counties. All the back part of the house (a high two-storied one) was covered with the Vines, which had been looked after properly, the growth of some fine young canes having been encouraged. I have seen many a worse lot of Hamburgs in Vineries than the black Grapes were; they were well coloured and well ripened, and there was a good crop. The roots ran under the pebble causeway next to the house, and out under the farmyard adjoining, which was surrounded by farm buildings. It was just one of those warm sheltered cosy sort of places where one would expect under proper treatment to see good results, and there are hundreds of such places with bare walls which might be covered with beautiful foliage and fair fruit if proper advantage were taken of them. "It is simply," as "Peregrine" says, "a question of trying." Horticultural societies should encourage the growth of outdoor Grapes; and it might be a step in the right direction if, say half-a-dozen gardeners could be got to give their experience of Grape cultivation out of doors in each of the southern and midland counties. I feel certain from my own experience that hundreds of tons of good Grapes might be obtained in most seasons if advantage were taken of positions favourable to their growth.

Thirteen years ago I planted four Vines on the south front of the house in which I live. I made no border for them, but simply dug out a hole for each, and put in a barrowful or two of the top spit taken off a common (a healthy one), and mixed a little half-rotten stable manure with it. The natural soil in front of the house is a very poor sandy loam that will grow forest trees and Coniferae pretty well if trenched, but not vegetables without very heavy dressings of manure. Gravel covers this poor soil quite 12 ft. out from the house, then turf. This has remained undisturbed ever since they were planted with the exception of opening the ground alongside of the turf to put in a drain a few years ago. Now for results. The Vines are the ordinary White Sweetwater. They were strong plants which had been grown out of doors in a nursery (not in pots). After planting they grew away well, for I did not stint them in the way of water the first year or two either at top or bottom. They made good strong canes, which I was careful not to overcrop for the first three or four years. The first account I have of the produce is that of 1874, when I gathered about a hundredweight of good well-ripened Grapes. Some of the bunches weighed a pound and a quarter each, and a gentleman who has travelled on the Continent told me that they were quite as good as the ordinary Grapes grown there. I had good heavy crops every year till 1879, when, owing to the very bad season, they did not ripen, nor did the wood ripen properly, and for the first time since planting mildew made its appearance. This I killed by dusting with 2 lb. of sulphur, distributed by that excellent French invention *Boite à Houppes*. This year, owing to the severe check which they had experienced, there was very little fruit, and that did not ripen properly. Mildew again made its appearance, but not so bad as the year before. The Vines made very fair growth, and have ripened their wood pretty well, so that with a return of good sunny seasons I hope again to have good results, though I do not expect to have such heavy bunches as when the Vines were younger. I intend taking off the gravel and putting some better soil underneath, and I have no doubt that they will pay well for the trouble.

R. LLOYD.

Brookwood.

—In a field on the east side of the river Lark, opposite the Botanic Gardens in Bury St. Edmunds, is a portion of land still known as the "Vine fields," and here may still be traced the terraces or raised beds in which the Vines are said to have been grown by the monks of the abbey of St. Edmund's Bury. From the produce of those Vines the monks of this establishment are said to have manufactured excellent wine; and if this be so, it is only fair to infer that the Grapes used for this purpose must have attained a considerable degree of ripening. Some have, therefore, been inclined to think that a change for the worse must have taken place in the character of the seasons; but, what is more probable, the palate of the

ancient monks of St. Edmund's Bury was less fastidious than that of wine drinkers of the present day. Be that as it may, however, there can be no question about the ripening of Grapes during most seasons in the open air in the southern parts of England, and even in the eastern counties, which are far from being celebrated for their balmy breezes in spring, or even during the early part of summer. A few years ago the late Mr. Darken, of Westgate Road, Bury St. Edmunds, was, and had for years been, in the habit of cultivating the Grape Vine in the open air, and he by no means confined himself to one or two varieties; on the contrary, he grew many sorts, and seldom failed, even in unfavourable seasons, to ripen most of them. The situation, was, however, peculiar, and to a great extent accounted for his extraordinary success. It had formerly been a chalk-pit of large dimensions, open to the south, and thoroughly sheltered on the remaining three sides. Most of the Vines were trained to very high walls, while some were attached to short stakes placed in a slanting position.

The Pruning and Training practised in the case of the Vines upon the walls was a combination of the long rod and short spurring systems, and black as well as white sorts generally coloured and ripened well. Even such sorts as the Grizzly Frontignan I have seen well coloured and of good flavour, and I believe it never shrank upon the open wall, although its propensity to do so under glass is only too well known. Mr. Darken's son and successor has now covered most of these Vines with glass, and, with slight assistance from artificial heat, produces fruit of improved quality, as well as earlier in the season. There are, however, several other successful growers of Grapes in the open air in the town of Bury St. Edmunds whose gardens possess none of the advantages which went so far to secure success in the case of the late Mr. Darken, but who, nevertheless, during most seasons' succeed in producing perfectly ripe and delicious fruit. I believe, however, that they confine their culture mostly to the well-known Royal Muscadine, or occasionally to the Esperione and the Black Cluster, but the first named variety is considered to be the best. Among the most successful growers of Grapes in the open air here may be mentioned Mr. J. Clarke, of College Street, and Mr. Harvey, of Westgate Road. The first only grows the Royal Muscadine, and, with the exception of the present season and its predecessor, he has never once failed to obtain ripe and delicious fruit in abundance for these last twenty years, or since the very unfavourable season of 1860.

The Soil is naturally of good quality, and the Vines are trained to a brick wall, some 6 ft. high, and about 45 ft. or 50 ft. long, facing due south. The method of training adopted may be called the long rod system; that is, the bearing rods are trained in a vertical position, at a distance of not less than 2 ft. from each other, and between each pair of bearing rods a young shoot is annually trained, to become in its turn the bearing rod of the succeeding season. As soon as the fruit is gathered the old rods are at once cut out, in order to as much as possible facilitate the ripening of the young rods, which are destined to furnish fruit next year. The weather of 1879 was so exceedingly unfavourable, that wood as well as fruit failed to ripen; hence the failure this year; but 1880 has, however, been sufficiently favourable to apparently ripen the wood, so that reasonable expectations may be entertained as to the success of the fruit crop of 1881. Mr. Clarke does not stop the young shoots at the top of the 6-ft. wall, to which they are trained, but allows them to grow 1 ft. or 18 in. higher, secured to wire netting, which surmounts the wall, but at the winter pruning each shoot is cut back to the height of the wall, and this operation is generally performed as soon as the leaves are about to fall, when the rods are at once fixed in their proper positions.

Cottage walls, especially the end one or that of other buildings with a southern aspect, are generally eligible positions for the Grape Vine, and there it is frequently to be found, but very often mismanaged or altogether neglected, so that however favourable the season may be the fruit fails to come to maturity, a circumstance very much to be regretted, as very little trouble or attention is really necessary in order to secure good crops in ordinarily favourable seasons. In such situations it is possible that the spurring system is preferable to the long rod, as in the latter case more attention might be required than the Vine would be likely to get, and if the former system be followed, the shoots or rods may be trained either vertically or horizontally. The latter is the most suitable, and if so, the shoots should be trained not less than 1 ft. apart, or say four courses of bricks between each. The pruning and nailing in of such Vines should be performed as soon as the leaves have fallen, or they may be deferred until after severe frosts are over in spring. To prevent as far as is possible the spurs becoming large and unsightly, it is necessary to cut the young shoots well back, or to the nearest well-developed bud to the rod. When this is done the rods should have the loose bark rubbed off them, and, as a prevention of mildew, should be painted with a mixture of soot and sulphur; when this is

dry the rods should be securely nailed to the wall, when nothing more will be required until the time for disbudding or summer pruning has arrived. When the spurs become somewhat old they will each generally produce a number of young shoots, all of which, with the exception of one or at most two of the strongest and best placed, should be rubbed off, while those retained should be stopped at the joint next the embryo bunch, or I have never known any evil to result from stopping the shoot at the bunch itself. These shoots with their bunch of fruit may be allowed to protrude from the wall, or, with the view of giving the fruit the benefit of closer contact with the wall, the shoots may be neatly nailed to it on the upper side of the rod, and this when properly done gives a neat and ornamental appearance to the Vine. Lateral shoots should from time to time be stopped in order to give the fruit the benefit of light and sunshine, but large leaves from the young shoot must never on any account be removed.

Thinning the Berries.—As a rule, each shoot should only be allowed to carry one bunch, and if it be desired to have the fruit as fine as is possible, the berries in each bunch must be carefully thinned out, an operation which should be performed when they are very small. By adopting the spurring system of pruning, more particularly in cases where the wall is of considerable height, the latter can be kept permanently and perfectly covered; and if the bunches produced be smaller than would be the case if the long-rod system was successfully pursued, there would nevertheless be probably an equal weight of fruit and of equally good quality.—P. GRIEVE.

—We have had during the last few years such indifferent ripening seasons for tender fruits in the open air, that it requires considerable faith in the future to induce one to plant Vines largely out-of-doors in the expectation of obtaining a crop of ripe fruit. But the greatest inflictions do not last for ever; therefore, let us not despair of again seeing ripe Grapes upon our outside walls. I am hopeful that we shall have fine ripening seasons soon; indeed, but for the general paucity of fruit this year, owing to the comparative absence of sunshine in 1879, we have had heat and warmth enough to ripen Grapes in the open air, as I found here Madresfield Court with well coloured and almost sweetened berries on immature bunches on a south wall. The season has, at least, well ripened the summer's wood, and there is plenty of fine hard brown shoots to cut back, and the buds are full and firm. A few years since I planted here small forms of several kinds against the buttresses of a south wall, intending to carry rods up each and then along the top of the wall above Tea Roses. The Vines have done well, and I think, when more fully trained, will yield an abundance of good fruit.—A. D.

—In reference to the subject of Vines in the open air, may I be allowed to say that I have not been correctly represented (see p. 605). No one who has an opportunity of seeing what is done in many parts of the country could say that Grapes could not be ripened in the open air, as there are many seasons in which fairly eatable fruit is grown, but there are many in which they never get sufficiently matured to be of use except for wine-making, and Grape wines of this country's growth are not likely to compete with those of foreign production; consequently, except in such cases as that of any one feeling inclined to grow a Vine or two with such chances of fruit as the summers permit, I maintain that good walls may be turned to better account by planting them with Peaches or good keeping Pears.—T. BAINES.

THE BEST WINTER GRAPES.

WHAT we call winter Grapes are those fit for use from early in November until late in March, and to secure a good supply of Grapes from the beginning to the end of that period is worth a little consideration. The Muscat of Alexandria is a finely-flavoured Grape, when well grown, at all times, and where there are plenty of means it may be had in good condition at least until February, but it can only be kept good until then through being thoroughly matured and well finished by the end of September, and as it is well known this cannot be done in the majority of cases, I will leave this variety out of my winter Grape list altogether, and as a light-coloured Grape substitute Raisin de Calabre. This variety, although not very thick in the skin, is an admirable keeper, and the berries retain their rich flavour well up to the last. It is not at all a shy grower, and under ordinary care the bunches usually pass through their various stages of development without blemish. As a companion to it, let me recommend Gros Guillaume, in my opinion one of the best late Grapes in cultivation, and one which should be much more grown than it is. In growth it is all that could be desired. The berries form and swell well, and when ripe come nearer those of the Black Hamburg in flavour and quality than any of our other late black Grapes. It might be called a winter Hamburg.

Next to this I would place Black Alicante, then Lady Downes, and last Gros Colmar. I wonder if there was ever a single berry of this tasted which could justly be said to be first class in flavour. To its appearance I have no objection, but, as a rule, the less said about its flavour the better; moreover, I find that it does not ripen so well as some others, neither fruit nor wood, facts which stand much against it. If I add another light fruited one to our list it will be Pearson's Golden Queen, a coloured representation of which appeared in *THE GARDEN* some years ago, and I find that this Grape quite comes up to what it was there stated to be. It grows strongly, ripens freely, and hangs well, and its flavour is by no means bad, although sometimes not perfect. Trebbiano is another which I think much more of than such as white Tokay or Syriau.

Apart from having good varieties of late Grapes, it is a great advantage to have them properly matured before the days get too short. I have never had any difficulty in keeping Grapes that were thoroughly ripened in September, but others which had not reached that state until well into November were difficult to deal with.

CAMBERIAN

VENTILATING FRUIT ROOMS.

SUCCESS in keeping winter fruit without decay depends almost wholly on the apartment which it occupies. If the fruit room is too warm, or if the temperature is changeable, it is liable to decay soon. Careful ventilation, conducted so as to maintain a uniform low temperature nearly down to the freezing point, will keep most fruit sound until the warm weather of spring. For common family use it is most convenient to provide a separate apartment in the cellar, and if windows are on opposite sides the ventilation will be more entirely under control, although this is not indispensable. The best way is to hang the windows so that they may be hooked up at different heights or closed at pleasure. One or two thermometers in the room are indispensable, and enough air should be admitted to keep them *nearly at the freezing point at all times*. The windows, being placed near the top, effect a more complete change of air through all parts than if situated lower down by the descent of cold air. A little practice will enable the attendant to control a uniform temperature with little trouble by adjusting the windows for the admission of more or less air, according to the condition of the air without. When the weather is warm in the daytime and cold at night, the windows are to be closed by day and sufficiently opened in the night, and the same care is to be taken for any other fluctuations in the weather. The same treatment in ventilating is applicable whether the fruit is placed on central shelves, in cases of drawers, or in barrels—a uniform and low temperature being alike desirable. If those who have been in the practice of storing their Apples in warm and damp cellars where no provision has been specially made for keeping them would provide a room purposely, and regulate the temperature in the manner we have indicated, they would be amply repaid for the trouble by sound fresh fruit instead of the baskets of rotten Apples which they have had to carry out from their badly aired cellars.—*Country Gentleman*. [Inasmuch as in our country keeping the fruit room at nearly freezing point is impossible, the conditions that will suit best are to be found underground.—ED.]

Cooking Dessert Apples.—I quite agree with "Justicia" that the best Apples for cooking are those that contain their own sugar, and I think all will agree that 'dessert varieties do this most. I will name an instance or two that have come under my own notice. This season we had a fair crop of King of the Pippins, and not having much demand for them for dessert, they were used for cooking. After I had supplied them for a day or two I was told that they made very fine puddings and tarts, the flavour of which was pronounced to be greatly superior to that of those made of Codlins and similar sorts. Who will say that Sturmer Pippin is not better for cooking than the Norfolk Beaufin? Then why go on planting the latter while the former will keep as long, and my experience of it is that it is as good a bearer? I think Sturmer one of the very best late Apples grown. An Apple tart or pudding is best without sugar, but who appreciates one made with sour Apples?—J. C., *Farnboro'*.

Canadian v. American Apples.—I was glad to see in *THE GARDEN* the other day some seasonable remarks by "Justicia" on American Apples, which I can endorse by my own experience. In a season like the present, when most consumers have to depend mainly on American Apples, owing to the almost total failure of our own crops, it is a matter of considerable importance that we should have the imported fruit in as good condition as circumstances will allow. I have my supply from one of the most respectable dealers in Liverpool, and I believe get as good fruit as is in the market, with the result that the American or, to be more exact, United

States Apples are not so well packed, are in smaller barrels, and have a layer or two of fine fruit at the top of the barrel and inferior fruit below, while the Canadian barrels are larger, contain finer fruit, more firmly packed, and of uniform quality throughout. As no doubt *THE GARDEN* has numbers of American readers, it is to be hoped that the remarks which appear in it on this subject will receive the attention of both growers and packers. The little extra labour required to carefully handpick and pack the fruit will be amply repaid by the superior condition in which it will be received in this country; it will then deserve a higher price, and thus in the end will prove more satisfactory to all concerned—growers, dealers, and consumers.—J. E.

A Fine Early Pear.—Petite Marguerite is one of M. Andre Leroy's seedlings, and it was held in such high esteem by that celebrated French pomologist, that he named it after the youngest of his granddaughters. In the year 1863 it was first offered in France, and in this country it has been on trial several years, but not until recently has its merits been recognised, and its propagation and dissemination seriously undertaken. This shows how much time is required to determine the value and to raise a stock of a new fruit. Petite Marguerite, although a moderate grower, both on Pear and Quince, is sufficiently vigorous to satisfy nurserymen, and I hope in the near future to see this valuable Pear extensively propagated. The list of choice early Pears is not so large but a few more good sorts may be added, and I am certain that all lovers of fine fruits will welcome the new comer. It is of medium size, just large enough to be acceptable as a dessert fruit. Ripening as it does about ten days before the Bartlett, it possesses a particular value as an early Pear. As a fruit of the very first quality, it can be highly recommended to connoisseurs for the table, but it is not large and showy enough for market. M. Leroy, in his *Dictionnaire de Pomologie*, describes it as the best Pear ripening in August. We believe this statement to be as true in America as it is in France.—W. C. BARRY, in *Country Gentleman*.

ORCHIDS.

CATASETUMS IN BASKETS.

I AM sure that Catasetums, Cynoches, and Mormodes would be more generally cultivated if they were better known, as the singular structure of their flowers always commands a considerable amount of interest, while the peculiar manner in which the pollen masses of the Catasetums are ejected on the horns with which the column is furnished is in itself a great curiosity. Another characteristic of the Catasetums and Cynoches is the occasional production of two or three kinds of flowers on the same plant, sometimes on the same flower-spike. So dissimilar are these flowers, that when first observed they were considered to belong to distinct genera, and named respectively Catasetum, Monachanthus, and Myanthus—the first name being assigned to the large fleshy flowers furnished with horns or feelers, and which are now generally considered to be the seed-bearing flowers, the second to the hornless sterile flowers, and the last to those which, together with other structural differences, bear the horns at the base instead of the apex of the column. The difference between these flowers was so wide as to warrant the supposition that they were distinct, but being produced together on one spike was directly contrary to such an opinion. Cynoches Loddigesii, too, runs into a variety of forms. Even in small collections a few of these plants are to be found, thus "showing that they are not entirely disregarded; but owing to unskilful treatment the possessors in most cases do not know what the flowers are like, and so interest in them is lost. The common error in the management of these plants consists in their being given too little water when growing and too much when resting. When growing too much water can scarcely be given them, provided they be well drained; but when resting they should be dried as thoroughly as a deciduous Dendrobe, the resting period to continue from the time the new growths are fully completed until they again begin to grow, no matter how long it may be, unless flower-spikes appear, in which case water should be given until the flowers are decayed.

I think it a great mistake to grow these plants in pots, for, although not strictly epiphytal, they are generally found in their native habitats growing on loose deposit composed of decayed twigs, leaves, Moss, &c., permeable to air to a considerable depth. I have grown them fairly well in pots, and so have many others I know; but so treated I have always found the roots liable to decay periodically, and that small or weak plants stand but little chance of improvement in them. Having a few poor plants of each of these last spring, and having just then received a small importation in very bad condition, I thought I would try what a radical change would do for them. I therefore basketed them all in peat and Sphagnum, and suspended them in an intermediate house. The effect was surprising; they

made in many cases stouter growths than the imported ones, being shorter and proportionately thicker than any I ever saw in pots. They flowered remarkably well, some of them twice, and one plant of *Catasetum tabulare brachyglossum* three times during summer and autumn. As they finished their growth water was altogether withheld, and they were suspended in a drier house, but the pseudobulbs did not shrivel, for as soon as the plants got thoroughly dry innumerable threadlike air-roots rose perpendicularly from the surface of the basket. The tender points of these roots kept the plants nourished, and the roots continued to grow, until now many of them are 3 in. in height. These auxiliary air-roots resemble those on fresh imported plants, but which I have never seen to a like extent on plants in pots. It is evident to me that a sounder and a riper growth, fitter to produce flowers to perfection, can be obtained by growing these plants in baskets than in pots. I therefore advise amateurs who have these Orchids in an unsatisfactory condition to treat them as above described, keeping them perfectly dry until they begin to grow, and then placing them in baskets. Afterwards suspend them in a cool stove or intermediate house, and liberally supply them with water from the time they begin to root until growth is completed. I know there are many of these plants (particularly in small collections) for which the owners begrudge the room on account of their not flowering, but still dislike throwing them away. If they be grown and flowered well, but few plants in their collections will command so much attention. Almost the whole of them are natives of South America. The beautiful *Mormodes citrinum* and *M. luxatum* are found in Mexico, and may, in case of necessity, be grown in the greenhouse, but even these are grateful for a little extra heat, and flower best when grown in the intermediate house with the others. A rather dry house, of a temperature of from 50° to 60°, is the best for them when at rest.

JAMES O'BRIEN.

OUR ORCHIDS.

I CANNOT agree with "F." (p. 567) when he says that Orchids are the easiest things imaginable to grow. Many of them, as every grower knows, are quite the reverse, and there is no class of plants that taxes the skill of the grower so much. Other plants have a resting time and a growing time that is sure to begin with spring and end with autumn, unless otherwise arranged to suit some particular requirement; but such is not the case with Orchids. They require constant watching in order to ascertain their particular wants. Even in the same house some will be growing while others are at rest, and some will not require any rest at all, and so on. Then we are told because "F." had no gardener who understood Orchids it was so much the better. Can "F." point to a man who can manage Orchids as they should be without having some knowledge of them? Should valuable Orchids be entrusted to such a person? The statement, "Oh, I shall do my best; I think they'll succeed," reminds me of the banker who said to a depositor, "Oh, I'll take care of your money if my bank don't break." "F." tells us when he got home room was made for his plants (of which he is kind enough to give us a list) in the stove. Does he mean to tell Orchid growers that they grew and flourished in a satisfactory manner in a stove for any length of time? I should certainly much doubt it; the more so as he tells us they were put on the sunny side. Why, I say it is nothing short of sure death for such things as *Cypripediums* to be exposed to the sun; and again, *Masdevallias* would die at the very name of stove heat, for they are amongst our coolest Orchids, and will not be at all satisfactory if they are not kept from the direct rays of the sun. They may be some time in dwindling away, but they are sure to do so under such treatment. "F." must be convinced by this time that an Orchid grower could not be such a mistake as his friend considered him to be. Depend upon it, wherever Orchids are grown well they will be found under the care of an experienced cultivator. Nor need a good Orchid grower be a bad cultivator in other departments, but rather the reverse.

H. C.

NOTES ON ORCHIDS IN FLOWER.

Second Flowering of *Dendrobium chrysanthum*.—I have a plant of this in a basket which flowered freely in July in an *Odontoglossum* house. Here it was allowed to remain at rest and kept dry, but early in November, showing signs of growth it was moved into warmer quarters; here it grew freely and made twelve growths, eleven of which have flowered profusely. The growth is short-jointed, so much so, that thirty-eight flowers were borne upon one growth of 15 in. The flowers are now opening upon the last growth. The colour is very fine, but the size smaller than usual. In spite of all we can do to dry it off, it is now again showing young growth, two from each of the old shoots. Is this second flowering usual? and how should it now be treated?—W. B.

Bronzy-leaved *Odontoglossums*.—I cannot agree with "F. W. B.'s" statement (p. 593) that a bronzy-leaved plant is equal in vigour to a green-leaved one, as from close and repeated observation I am quite convinced that it is a loss of sap from deficient root action that causes the foliage to assume a bronzy tint, and with further practice I think "F. W. B." will find this statement to be correct. My object in cautioning cultivators to moderate the watering of these plants during winter was to prevent any one from destroying the roots from this cause, thereby preventing the plants from putting on this bronzy hue, which they are not long in doing when they lose their roots without the aid of the sun. Of bronzy bulbs I said nothing, as I like to see a good dark bronzy bulb well clothed with deep green foliage. The two plants "F. W. B." has in one pot, the one bronzed and the other green, clearly proves that sun-bronzing is incorrect. If it were so, both plants would be bronzed alike. It rather tends to prove my statement to be correct, and if "F. W. B." will make a careful examination of the two plants he will find the green-leaved one in possession of a good set of roots, and the bronzy-leaved one deficient in this respect from some cause or other, most probably from injudicious watering.—J. ROBERTS.

***Calanthes* as Cut Flowers.**—Amongst Orchids for supplying cut flowers during the darkest days of the year that are easily grown, and for the space they occupy yield a large number of beautiful blossoms, few are more worthy of culture than *Calanthes*. If they would only hold their beautiful foliage in good green condition during the time of their flowering, what beautiful decorative plants they would be; but unfortunately the leaves begin to turn yellow and get unsightly as the blossoms begin to expand, consequently they require some extraneous aid in the way of foliage to set them off to advantage. Their long arching spikes look extremely well in living rooms rising from a groundwork of fresh Fern fronds, and in stoves they are very effective mingled with the ordinary inmates of such structures. As the blooms on the spikes expand in succession from the bottom, it is wasteful to gather the whole spike until it has nearly done flowering, but as the single blooms are well adapted for button-hole and other bouquets, they may be utilised most effectively for that purpose. *Calanthe Veitchi*, bright pink, *C. vestita*, white with crimson eye, and the white kind with a yellow eye are the sorts which we grow most largely. They delight in rich cow manure, loam, and peat. They should have plenty of moisture, a stove temperature during the growing season, and a drier atmosphere and somewhat cooler temperature when flowering. They will last in perfection a long time, and are Orchids really worthy of general culture.—J. GROOM.

Orchids at Davenham Bank, Malvern.—Amongst a good collection of Orchids at this place the most noticeable in bloom at the present time are *Angraecum eburneum*, *A. sesquipedale*, *Calanthe vesita* and its variety *lutea*, *C. Veitchi*, *Cypripedium insigne*, *Lælia autumnalis*, *Cattleya crispa*, *Masdevallia ignea*, *M. tovarensis*, *Odontoglossum Andersonianum*, *O. Bluntii*, *O. cordatum*, *O. Pescatorei*, and *Oncidium ornithorhynchum*.—J. S. T.

Small Unestablished Orchids.—I have just received twelve small Orchids of the undermentioned varieties; they are not established, and are at present in 3-in. and 4-in. pots. What temperature should I keep them in during the winter? They will require repotting; had they better be done now or in the spring? The sorts are—*Epidendrum vitellinum*, *Oncidium sphacelatum*, *O. leucochilum*, *Odontoglossum pulchellum*, *O. Rossi majus*, *O. cirrhosum*, *O. Lindleyanum*, *Cymbidium aloifolium*, *Maxillaria Harrisoni*, *Cypripedium Pearcei*, *Masdevallia coccinea*, *Trichopilia tortilis*, and a very slender-growing *Dendrobium*, of which I do not know the name.—PEPPELEXED.

***Calanthes* and Ferns.**—I find Ferns a great assistance to these lovely Orchids by way of compensating for their lack of foliage when in bloom, and for the future I intend to plant the two together. The Maidenhair Ferns, or *Pteris serrulata*, or any others easily raised in quantity from seed may be utilised in this way. When the *Calanthes* are repotted in spring, about half a dozen seedling Ferns may be dibbled into each pot, and under the conditions that *Calanthes* are usually grown they will form a good undergrowth of green foliage by the time that the *Calanthes* are in bloom, and the beautiful flower-spikes rising from amongst the Ferns will prove much more attractive than when only bare bulbs are visible. Moreover, I do not find that the Ferns interfere in the least with the growth of the Orchids, as in baskets and pots pretty well filled with Ferns the growth of the Orchids is quite equal to that of those where no Ferns are used in that way.—J. G., *Linton*.

***Dendrobium Cambridgeanum*.**—Will some of your correspondents kindly inform me in what way this *Dendrobe* shows bloom. I have seen it described as "blooming with the young growth," and Mr. B. S. Williams says in his "Orchid Manual" that it "blooms on the young growth." To put the question plainly, does it bloom in March on the young growth now being made? or on the ripened bulbs of last year's growth?—T. L. C.

COUNTRY SEATS AND GARDENS OF
GREAT BRITAIN.

CASTLE ASHBY.

CASTLE ASHBY, the seat of the Marquis of Northampton, in Northamptonshire, is a fine Elizabethan house, standing on high ground, having on two sides gardens and terraces, and on the third an Elm avenue three miles long. In 1715 four Elm avenues were planted on the four sides. Of three of these only here and there an old Elm remains; but the fourth, originally about a mile in length, was continued by the late Marquis of Northampton. For many years an invalid, he

tains. The colours of this were arranged by Lord Northampton with the skill of a painter, and nothing can be more lovely on a summer day than its rich and harmonious beauty, with the grey old house above it; on one side the church, the park, with great variety of trees surrounding it, and beyond, over trees and water, a blue distance. The flowers used are chiefly Geraniums, carefully shaded, avoiding the brightest scarlet, Lobelias, Petunias, African Marigolds, and Tagetes, all shaded with dark points of Coleus. A broad walk between Portugal Laurels, grown as Orange trees, and Irish Yews divides this from another terrace, in the centre of which is a large basin between stiff beds of trimmed Laurel, and small beds with masses of bright



Castle Ashby (sketched, 1830).

resided almost entirely at Castle Ashby, and he made the terraced gardens, with many other alterations and improvements. An old plan exists of a large terraced garden before the house, but this has been entirely swept away, probably when the grounds and shrubbery were arranged by "Capability" Brown. About fifteen years ago the present garden was made, with broad terraces, straight walks and steps, fountains, and balustrades of terra-cotta. Round the top of the house is an open balustrade of letters in stone; and this idea is carried out in the external balustrade of the garden, with the words—"Consider the Lilies how they grow; for I say unto you that even Solomon in all his glory was not arrayed like one of these."

From a broad gravelled terrace before the house a green slope falls to the first wide terrace laid out in a stiff garden of beautiful design, in the old French style, with two foun-

flowers between. On another terrace is a fanciful garden with the initials of Theodosia, Lady Northampton, for whom the garden was made, and to whose memory a Latin inscription appears in part of the balustrade. When the summer flowers in the garden on the first terrace are over, it is planted again for spring, and is as beautiful in May with soft pink and blue, and white and yellow, as it is in July with richer colours. At both times it is an example of the effect that may be made in a bedded-out garden by careful study of harmony of colour and the use of shading. The following is a list of the flowers now used in the spring garden (Myosotis has been lately given up, as it goes out of flower too early): Pansies—Lilac Queen, Cliveden Purple, Mulberry (dark purple), Blue King (royal blue), Leviathan (white), Viola Seedling (white), Corisande (pale primrose), Seedling (yellow), Crown Jewel, Silene compacta, Silene pendula, Silene

ruberrima, *Limnanthes grandiflora*, *Erysimum Peroffskianum*, and *Nemophila insignis*.

The old church, of the fourteenth and fifteenth centuries, looks down upon this garden, and round and beyond it the sunny churchyard; on the south side one garden follows another in perpetual variety—one all turf, and trees, and flowering shrubs, then an Italian garden in front of a large conservatory of stone, with three great arches in the centre. From it a straight walk goes between sunk panels filled with arabesques in coloured stones and gravel, through an archway to another garden of Yew and Box hedges, Carnations, Sweet Brier, and Roses, and beyond a large kitchen garden, where the long walk, continued between pyramidal Pear trees, ends in an old-fashioned herbary.

Crossing the long walk at right angles, another walk between borders full of a great variety of herbaceous flowers leads down through an arboretum to a wild garden by the water, brilliant in spring with *Polyanthus*, *Aubrietia*, &c., with a great variety of Iris. The walks continue into the shrubbery, with the large "ponds," the work of "Capability" Brown. Perhaps we have dwelt too long upon these gardens, but their beauty is very fascinating, and they have the charm of being the work of time; the old and the new are blended together, growing under the hands of succeeding generations full of love for the place and reverence for the past. H.

THE FLOWER GARDEN.

GARDEN PROGRESS.

A SEVERE affliction, lasting over five or six years, has prevented me from following my profession, and seldom seeing any of the horticultural journals, I seemed to lose sight of what was going on in the horticultural world, but on removing to another district I have in a great measure regained my health. I have, therefore, been enabled to look about me again, and a friend having lent me *THE GARDEN* I have had much pleasure in reading many of the articles therein. It puts one in mind of early days, when gardening newspapers were in their youth; when Mr. Marnock's paper was before the public; when the pen was used with freshness and vigour by the Barnes's, the Ayres', and many others; and when to be flower gardener to Mrs. So-and-So, or at Such-and-Such a place, was something to excite the ambition of the best class of young men. Those were the days before the fashion of four months' bedding, with its rows of *Verbena*, yellow *Calceolaria*, scarlet *Geraniums*, and white something else, if it could be found, was thought to be the acme of perfection in the gardening art. What a pleasing change has taken place in that five or six years in regard to the arrangement of the flower garden! Surely it needs not to be asked who were the wisest men—those who followed the red, white, blue, and yellow style, throwing all hardy plants away, or those who kept them, and now find their gardens the most fashionable? It may please the hard-hitting "Justicia" to hear from one who, like myself, has, as it were, begun life afresh that I have not gone into one garden this summer, and I have been into many, but where I have heard these remarks, or something like them—"This is the beginning of a new era as regards hardy plants, and we have just got in a collection," or "We are going to form an old-fashioned hardy plant border." More than once has been said to me, "We don't know anything about such plants, but our people say they are coming up again," and this by really good gardeners in first-class positions. That they really did not know much about hardy plants was evident from the positions in which many of them were planted, some small choice alpine or dwarf Aster being set perhaps in the centre of a 4-ft. bed, with some strong vigorous-growing plant near the edge. Still there is the growing taste for such things, and the good old-fashioned style of flower gardening, and if "Justicia" and his coadjutors could only put an end to that other class at which he has hit so hard—I mean that class of self-called landscape gardeners, whose knowledge of trees and shrubs is so limited, that they plant the same things everywhere—he would be doing the gardening world good service. Such men hesitate not to plant a

hundred or two of the variegated *Negundo* and similar things in one place, and the result is that the persons employing them get disgusted and disheartened. The highest art in the opinion of this class is to get lots of white glistening spar or limestone at 30s. or 40s. per ton, and stick it about round the walks, more especially between the gateway and the front door; also in front of borders and Grass, and call it rockwork. One of this class once said to me, "I learned my landscape gardening with So-and-So," naming one of our most noted men in the north. By-and-by I found that he had been running the barrow at one job for about six weeks when he was out of a situation. My chief object, however, in writing is to direct attention to one or more pretty pieces of work with which I have met this summer, and which I think even "Justicia" would say was beautiful. At one place at which I called when going round some borders which were, without doubt, good in their day, I noticed several patches of *Funkia Sieboldi* from 3 ft. to 4 ft. in diameter; but one of the prettiest hollows I have seen was a natural hardy plant carpeting on part of the

Dunham Park Estate in a somewhat aged wood. This was purchased by Mr. Scott, of Manchester; many of the trees had been cut down, and a fine mansion built, and the grounds were laid out and planted at very great cost. Indeed, valuable shrubs are already spoiling one another; more than half want taking out. But this was not the only blunder committed by the landscape gardener who renovated the place, for he made an oval pond close to one end of the mansion. On the present gardener (Mr. Ellis) taking charge of the place, steps were taken to do away with this pond, but a difficulty presented itself, both from its depth, 14 ft., and also getting soil in to fill it up if it could have been found, for it would have to be wheeled over a hundred yards after it had been tipped down from the carts. The difficulty was got over by first letting off all the water; and when the bottom had dried up, an oval stone basin with a fountain in the centre was constructed; then at the end a flight of stone steps to match the fountain, and likewise to harmonise with the mansion. Between the steps and round the centre fountain a 6-ft. gravel walk was laid down; at the ends on each side of the steps, at the foot are four circular mounds raised some 2 ft. above the level of the walk. On these are planted good specimens of weeping Yews worked on the Irish Yew, the stems and heads being well furnished, symmetrical, and well matched. Further on are four circles containing *Cupressus Lawsoniana erecta viridis*; these circles and mounds are planted with *Saxifraga hypnoides*, and the contrast of colour between the dark sombre foliage of the Yew and the bright lively green of the Saxifrage is very pleasing. The banks are filled with Roses, Ghent Azaleas, choice *Rhododendrons*, weeping and other Hollies. On the top of the banks and next the principal walk hybrid *Rhododendrons* are carpeted with dwarf Heaths, and on the dull November day on which I saw this arrangement it looked very charming indeed. I also noticed about the place that *Antennaria tomentosa* and *Spergula pilifera* were largely used for carpeting for bulbs and similar plants.

A Visit to Messrs. Clibran's, at Altrincham, would at once convince the most sceptical that *THE GARDEN* was influencing public opinion in matters of taste. Here were to be seen *Hepaticas* in thousands, as they seed so freely, *Polyanthuses* for bedding in thousands, *Colchicum autumnale* and the double kind in large quantities, every kind of hardy plants for carpeting and dotting, masses of *Aquilegia cœrulea*, *Anemone fulgens*, *A. japonica alba*, and *Honorine Jobert*, *Violas* and *Pansies* innumerable, double *Rockets*, the new *Forget-me-not* (*Myosotis elegantissima*), and in one corner of the grounds advantage has been taken of a spring of water to make beds for Cape Pondweed (*Aponogeton distachyon*). Of herbaceous *Pæonies* they grow some forty kinds, double *Primroses*, white, yellow, lilac, crimson, and deep purple-crimson; in short, men were as busy as they could be sending off hardy plants in all directions. The houses, too, were full of general stock, to name which would be to make a catalogue; but I may remark that Gilbert's new *Primulas* were very fine indeed.

One thing I noticed here which may be of service to many readers of *THE GARDEN*, and that was a box for propagating or protecting hardy plants. Of this I noticed several hundreds; they are 33 in. by 24 in., back 12 in., and front 6 in., thus giving a good fall; over the top is stretched tightly oiled linen, and a iron handle is fixed to the sides, by which the box is carried from place to place. I was assured that these boxes were preferred to cloches,

or the old-fashioned handlights, for many things. There were also one or two houses made with oiled linen stretched over a span-roofed framework, which afforded great protection to hundreds of plants. Some cheap houses were likewise just erected, 78 ft. by 12 ft., and span-roofed. The doors and framework were gas-tarred instead of painted; T iron ran from end to end, on which the glass was laid and held firmly by strips of copper. The pathway down the centre was sunk, and the plants stood on the natural ground-line; ventilation was obtained both at bottom and top. Plants, such as Pelargoniums, under such conditions looked short, sturdy, and strong.

N. J. D.

THE PURPLE ORPINE.

(SEDUM PURPURASCENS.)

NONE of the Stonerops, or Livelongs as they are sometimes called, are so variable as the British species *S. Telephium*, of which the plant represented in the annexed engraving is a variety. No fewer than twenty forms have received names either as sub-species or varieties, but of these our native *S. purpurascens* is as showy as any of



The Purple Orpine (*Sedum purpurascens*).

them, and the most desirable for cultivating as a border flower. It grows from 1 ft. to 2 ft. high, and has stout erect stems furnished with roundish fleshy leaves, and terminated by dense broad clusters of blooms usually of a bright rosy-purple hue, but sometimes white. It is not an uncommon plant, and may be found generally distributed about the country, usually growing in hedgerows and thickets, where late in summer and in autumn it produces its showy blossoms. In the garden this Stonerop, and indeed all the other varieties and allied species of about the same size, are particularly useful for planting in places which would be too dry for other plants, such as on rough rockwork and dry borders; of course they prefer, however, to be treated as liberally as other plants, and well repay any attention by growing and flowering more vigorously. When cut, the flowers last a long time in perfection; the stems are so

tenacious of life after they have been severed from the root, that they are often called Everlasting Livelongs.

W. G.

HARDY FLOWER GARDENING.

IF I were in "H. M.'s" place (p. 590), and had such a garden of my own, instead of making borders at 5s. per yard, which I consider quite unnecessary, I would expend the surplus in creating shelter from the winds which are so destructive as to render fine foliaged plants useless, for how a garden is to be enjoyable I fail to see if the rude blasts render the growth of tall plants impossible; why not raise mounds and plant shelter trees and shrubs, and groups of choice subjects in front to come prominently into view? There is no real necessity for many beds even in a large garden, and eight appears to me to be too many for one of the size mentioned. Many plants, such as Rhododendrons, Azaleas, Kalmias, Deutzias, Tree Pæonies, Magnolia conspicua, and hosts of others, look best springing direct from the turf in clumps; and Yuccas, Pampas Grass, Arundos, hardy Palms, or Aralia Sieboldi make excellent central subjects for beds permanently planted with edgings of hardy flowers that only require a minimum of attention. With plants like these that do not suffer from our roughest gales, and single specimens of Hollies and Conifers, or groups of Asters and other choice shrubs, there will not be much need for many beds on the double shift or any other system. If "H. M." dislikes carpet beds, by which I suppose he means the flat surface of dwarf plants, he should adopt the compromise plan that embraces all the good points of immediate effect without the flat surface, by growing good specimens in pots of Palms, Agaves, choice variegated Yuccas, &c., for central or dot plants, and using a thick undergrowth of Coleus, fine-foliaged Pelargoniums, tuberous Begonias, Fuchsias, or the many suitable subjects now employed in that way. I would also advise him to aim at making his garden permanently beautiful with subjects that do not fade with the first frost.

J. GROOM.

HARDY YUCCAS IN GROUPS.

WHEREVER space can be afforded, and suitable situations can be found for them, the hardy Yuccas should be grown. Few hardy subjects are so distinct in leafage and manner of growth as these; but to see them to the best advantage they should be arranged in bold groups, and in the immediate vicinity of such trees and shrubs as are best fitted to form a harmonious contrast to them. Perhaps the best situation for them is a sloping bank or piece of land, fully exposed to the mid-day sun, and backed up by evergreens of some kind. Thus placed, and allowed ample space for development, they will gain in beauty from year to year, and when in bloom will form a striking feature in the pleasure ground. The handsome spikes of large cream-coloured flowers are extremely effective, especially when thrown out into bold relief by the mass of verdure behind them. Yuccas like a well-drained soil, and thrive well where the subsoil is pure chalk. They delight in full exposure to the sun, and enjoy the shelter from rough winds which a stronger vegetation is capable of affording them; hence the advisability of planting them in tolerably close proximity to trees or shrubs of some kind which may screen them, not only from rough westerly gales when in bloom, but will also insure them against the withering influence of easterly or northerly wintry winds. The Yucca is a hardy plant, but the foliage of several of the most ornamental species, such as *filamentosa*, is apt to get either torn or discoloured when the plants are growing in free exposure, and when the leaves become much injured the decorative value of these fine hardy subjects is much diminished. A little discrimination in the choice of situation will, however, be all that is necessary to ensure their perfect safety in this respect, and there are few gardens where suitable accommodation could not be found for them.

In Grouping Yuccas a wonderfully fine as well as a more free and natural effect is obtained where a proportion of the specimens employed have attained sufficiently large dimensions to raise the head of foliage some 3 ft. to 6 ft. above the soil; these tall plants should not, however, be placed in a regular manner in a back line, but one here and there should be allowed to advance somewhat into the foreground, with some of the smaller specimens nestling at their feet. The effect of a group thus arranged charms by its irregularity and quaint beauty, and forms a picturesque and distinct feature in the garden landscape. I have often thought that we do not sufficiently value these noble hardy plants, for one seldom sees a bold, free use made of them, the owners of gardens generally being content with employing them on the dot system, which cannot be said to convey an adequate idea of their high qualities. It should be the aim of all who may have a large extent of pleasure ground to embellish it with plants of an enduring character, to create as much diversity as pos-

sible; this can be well effected by grouping families of plants having distinctive features in situations most favourable to them, avoiding as far as possible all semblance of regularity and formal outline. The Yuccas, offering as they do a complete contrast to all other forms of hardy vegetable life, may be made good use of in carrying out this idea, for by their means alone a distinct and interesting piece of garden scenery may be created. As before stated, the hardy Yuccas are children of the sun, and they do not as a rule flower freely unless they get a good baking in the summer; they need apparently a large amount of maturation to perfect their growth and prepare it for the production of bloom. With respect to soil, they can scarcely be termed fastidious, but it must be well drained. They appear to be perfectly at home where the subsoil is pure chalk, attaining a rude vigour, and flowering freely when thus situated. J. C. B.

Fallen Leaves.—"Justicia" draws a pretty picture of what a hardy border should be and how it should be kept in winter. There should be no digging, he says, and the fallen leaves should be left. I fully agree with him except as to the leaves. Theoretically, it seems quite right to allow the leaves to lie and decay amidst the surrounding plants, but in practice it does not answer. There are, for instance, in most gardens such things as slugs and snails. These delight in a leafy covering, and, protected from frost by the shelter, will prey upon the perennial green leafage and the starting crowns of the herbaceous plants, and do an immense amount of mischief. Then there are usually in gardens in winter, especially in hard weather, blackbirds and thrushes, which in their efforts to obtain food set all notions of tidiness at defiance. A troop of fowls would hardly turn a flower border more topsy-turvy than would a few of these birds. The first storm that came would whirl the disturbed leaves all over the place, much to the disgust of the cultivator, and the hardy plants would find that the theory of a natural dressing of leaf manure had broken down. I detest the forking of borders so common in winter. A moderate stirring of the surface first with a two or three-tined rake is good, then a dressing of soot or guano or both, and over all a thin surfacing of old pot soil or the rough screened produce of the rubbish heap, or, in fact, any kind of refuse soil that may offer. I think that most cultivators will agree that such a plan would answer better than the natural, but very inoperative leaf-dressing.—A. D.

[I never deal with theory except in the sense of its correspondence with actual fact. Your slug and snail notion is based on another kind of structure. How do the swarming herbs of the wood and copses of the world exist in spite of the slugs? A good protection for them is hard gravel walks and paths, where they lay their eggs without danger. There is no theory in the plan at all, as it can be carried out by anyone in any shrubbery. Against the door one may do what one likes, but not one leaf would I ever allow removed from a clump of shrubs or trees on my lawn or in my pleasure ground. I would prefer the leaves all over the place to a dug border, but I would, if need be, meet that difficulty by scattering a light dressing of soil over them. In what I should call a properly managed shrubbery or clump, with the bushes well spaced, and their branches resting on the ground, with low shrubs between, and evergreen and other herbs, there are natural impediments to the leaves rushing about in the way "A. D." suggests. They would fly off a bare dug border, but not so quickly off a clump treated in a more intelligent way. It is amusing to see my correspondent assuming that he knows what is practicable, and I do not. It is clear from what he says that he has not really seen the practicable side of the question at all. Let him go to any wood or copse where our native vegetation is happiest, and he will find the most excellent soil and surface to be found, and that on which our loveliest native flowers grow best is precisely where the leaves have gathered and rotted into a more perfect mulch than man could devise. I do not object to his dressing, but it will be all the better over the leaves—the two combined with care in spacing, grouping, and selecting the plants, would soon give us shrubberies more lovely than anything ever seen in a flower show or conservatory. This is a subject of the greatest interest and the utmost practical importance. I can say no more of it at this time, but would recommend "A. D." to refer back to some letters of Mr. Falconer, in which he tells us of the conditions under which the beautiful wood plants of North America grow. Our annual digging, mutilation, scraping away of leaves, and exposing on bare sloppy borders plants that in Nature shelter each other, and are shielded from bitter frost and burning heat by layers of fallen leaves, gradually sinking into excellent light surface soil for the young roots, are ignorant and brutal

practises that must be given up by all who really look into the needs of our hardy garden flora.—J.]

CHRISTMAS ROSES.

FEW plants can produce a flower that will equal in elegance and purity a well-cared-for bloom of the hardy Hellebore, or Christmas Rose. What could be greater praise than that applied to it the other day by a well-known floral decorator at South Kensington? Noting the flowers on the fine plants sent by Mr. Barron from Chiswick, he said: "You might mistake them for *Eucharis* blooms." These plants had been lifted a few weeks ago from the open border, and, with big clumps of roots attached, were dropped into half-sieve baskets, and then put into a gentle warmth. From twelve to twenty blooms were expanded on each plant, with plenty of others to follow. Mr. Barron mentioned that the purest flowers were those on plants kept farthest from the light. In most gardens this year there should be no great difficulty in getting flowers of the Christmas Rose expanded in the open air, but unless covered with glass they can hardly be pure, and of necessity they will expand slowly and singly. When, however, a quantity of flowers are wanted at once, as is the case at Christmas, some half-dozen strong plants lifted, as has been done at Chiswick, and placed in a gentle warmth, will enable the larger portion of the flowers to be ready for use just when wanted. It need hardly be said that plants so lifted, if replanted as soon as the flowering is past, will be little the worse for moving. But keeping all as large plants will not increase the stock; and therefore if but one plant out of the half dozen be broken or cut up into single crowns each year, a good stock will in time be had. To get good plants for this particular use, it is well to afford them something better in the way of culture than can be found in an ordinary plant border. A small quarter in the kitchen garden is well applied if specially assigned to the cultivation and propagation of plants that are needed for house decoration or the supply of cut flowers. With these Hellebores may also be planted *Dielytras*, *Spiræas*, *Schizostylis*, *Tritomas*, and similar plants, of which it is rare we find too many in any garden. Christmas Roses were very scarce in the trade not long since, that is, the pure white kind, which alone is in request for market purposes. Perhaps the quantity has been increased since, as any special demand often serves to promote a large increase in regard to stock. If they are to be had at a moderate price and true, gardeners will find few better investments than in the purchase of a score or two of strong roots and growing them on. With a good stock, relays may be had, and the blooming period made to run over some two months, whilst strong roots may be lifted for forcing only in alternate years. A. D.

AUBRIETIAS: PROPAGATION AND CULTURE.

A VERY useful class of plants, whether for spring bedding, for the furnishing of rockwork, or for forming permanent patches in the hardy plant border, are Aubrietias. In no case do they look more attractive than when left as permanent clumps in any position, for the masses of bloom produced by them in the spring are perhaps more striking and more enduring than those borne by most other spring plants. Clumps where left untouched, except having a little trimming of seed pods and straggling growth, have stood fresh and robust with me for many years, and that is much more than can be said in reference to many choice plants that are much more favoured, but have not nearly so much merit.

There are three methods of propagating Aubrietias: by seed, cuttings, and by division. All are simple enough, and the marvel is that as they may be propagated so freely, they should none the less be so comparatively scarce.

Seed sown as soon as ripe will yield plants to bloom the first year, and good-sized clumps the second year. As some plants will always seed there is no reason why seedlings should not be raised every year. Cuttings taken off just as the plants are going out of bloom, and inserted in shallow pans placed in a cool frame, will strike root and make strong plants for the winter's planting. By dividing old plants of course the largest new ones are obtained, but the Aubrietia does not root freely at the ground line, and often in pulling plants to pieces but small portions of root are found compared with tops. If, however, rootless portions are planted, they as a rule make root the following spring. Surface rooting is much encouraged by dressing the plants in the summer with spent pot soil. The more these can be encouraged the better, as then the earth roots may be dispensed with when transplanted.

Where the Aubrietia is largely used to furnish beds in spring it is well to get in a large batch of cuttings early in the summer, and when these are struck put them in 3-in. pots, and encourage the

plants to fill them with roots. Such plants will turn out in November, and push up growth much more freely than plants that have had their few roots much disturbed. Well-established plants of the *Aubrietia* are very recuperative; they recover from injuries by frost and snow marvellously fast. Last winter the hoar frosts quite killed back every piece of growth on a bed of plants, so that I gave them all up for dead; but no sooner did the weather become favourable than the roots threw up fresh growth, and in a short time the plants were as large as ever, blooming most profusely.

The old *Aubrietia deltoidea*, useful as it still may be to cover rockwork, hardly finds a place in gardens where such fine kinds as *græca*, *Eyrei*, *Hendersoni*, and *violacea* are grown, as these are all robust growers, with large flowers, and produced in large masses. *Græca* is the palest, but a capital kind, and very striking amidst the darker-hued kinds. Of these the deepest is *violacea*, the colour of which is quite a reddish-purple. It is an excellent feature of this kind that it not only seeds freely, but comes true from seed. As amongst spring flowers light colours, such as white, yellow, and lilac, so largely preponderate, any hardy plant that will give good masses of deep reddish hues is very acceptable. Mr. Ingram, of Belvoir, has a pretty little lilac-pink kind that is effective in large masses, but it is rather disappointing in single clumps. The flowers, though smaller, very much resemble those of *Arabis rosea*.

A. D.



Lilies in Grass in Pleasure Ground at Castle Ashby (see p. 7).

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Tulip Culture near Large Towns.—It is too true that Tulip culture has quite become a thing of the past near London, and "pity 'tis, 'tis true," for a Tulip bed is a beautiful feature in any garden. It is quite a common thing to plant out hundreds of thousands of the early flowering Dutch Tulips, hundreds of one kind being planted together to make a mass of red or yellow, whereas few now-a-days have an opportunity of looking into the inside of the large, beautifully marked, and delicately tinted golden cups of such flowers as George Hayward (Lawrence), Willison's Sir Joseph Paxton, or the lovely rose-coloured blooms of Heroine or Lee's Industry; that is reserved for the artisans about Sheffield or populous Manchester, where a great exhibition of them is held every year in May.—J. DOUGLAS.

Hepaticas do fairly well here with ordinary treatment, and they are now showing for a fine crop of blossom. Having a good stock, the various coloured kinds have been planted in any and almost all positions; some in deep shade, and others "high and dry" on rockwork, with a south aspect. In the latter position they do not make so much growth as those more shaded, but they flower and seed well, and seedlings may be taken in great numbers from near the parent plants yearly. The foliage and flowers in more shady places are finer and more lasting. I cannot say, as I have seen stated, that here the foliage is evergreen, excepting in the case of *H. angulosa*, which thrives well in every position. Its flowers have been 2 in. across, and its foliage nearly 5 in. across its upper lobes. Late last spring, before they had done flowering, I had some large clumps divided, and found the following method to answer well: Bits with one and two crowns were planted in 5-ft. patches, and over them were trained our usual crop of Scarlet Runners, tent fashion. They were secure from being trodden, and well shaded. Indeed, I thought too much so. However, having occasion to take up a few of each sort

recently, it was found that they had made rapid progress during seven months, being strong, deeply rooted plants. If I had to make the best of this beautiful Wind-flower, as I have to do with many plants whose wants I either cannot or have not yet found out how to accommodate, I should plant in a shady place in deeply dug and well manured stiff loam. I find from several inquiries respecting *Hepaticas* and the finer *Primroses*, that they are not everywhere so easily grown. Both with me have similar treatment in the open ground, and both *Primroses* and *Polyanthuses* make fine growth, but sooner or later every year they are severely attacked by red spider, which is difficult to clear from plants in the open border.—J. WOOD, *Kirkstall*.

Plants in Bloom Outdoors.—Although many may still have Roses in bloom out-of-doors, yet some of the readers of *THE GARDEN* may like to hear that to-day (December 10) I cut two fine half-opened Roses of Gloire de Dijon and a similar bloom of the splendid Bouquet d'Or, the three forming a choice posy. I may add that my large-flowered, dwarf, Ten-week Stocks have been in constant bloom since last July to the present time. Notwithstanding many losses in *Chrysanthemums* last winter and summer, our altar vases have for the last fortnight perfectly glowed with these flowers, in several varieties, obtained from all quarters, and I have now gathered a supply of them, which will open in the house and probably last some days, or even weeks, in the New Year.—WILLIAM H. SEWELL, *Yaxley Vicarage, Suffolk*.

Transplanting Hardy Plants.—A grand time we have had for the dividing and replanting of all kinds of hardy plants, work that must be done regularly where trade has to be done, and is none the worse for being occasionally done in private gardens when a good time like the present offers, and it can be done well. How much better it is to be able now to get all *Polyanthuses*, *Primroses*, *Violets*, *Pansies*, and scores of similar things replanted in fresh soil, and where the plants can get established, than it is to do so in the spring when there is a press of work. In open weather plants make root at once, and in spring have a great advantage over those more recently moved.—A. D.

Protecting Outdoor Primroses.—Owing to the exceptional mildness of the winter so far, *Primula japonica* is making new leaf growth, and with me, in many instances, throwing up a premature flower-spike. *P. acaulis* at the present rate of progress, and with the minimum shade temperature at 46°, will be in bloom in a month, but the latter is much harder than the former. Now, as seems very probable, we shall yet have smart, and perhaps prolonged frosts. I have taken the precaution of spreading loose stable litter over two beds of *P. japonica*; the straw portion can be removed in spring, otherwise for the reasons stated they would be much more liable to serious injury, especially as they must be full of sap, and the surrounding soil perfectly saturated with moisture. Wherever *P. denticulata*, *P. cortusoides*, or *P. Sieboldi* have been tried out-of-doors, or valuable *Polyanthuses*, similar treatment would be more desirable.—W. J. M., *Clonmel*.

Lilium giganteum.—Mr. Burbidge says this Lily is for the south or milder parts of our climate. Has he noticed the splendid growth recorded in *THE GARDEN* by Mr. Jackson near Bangor, in a district certainly no more favoured, if so much as that near Dublin? Surely many can boast of *Lilium auratum* five years planted! The great clumps in Mr. McIntosh's garden must be as old.—W. H.

Lilium giganteum Seed.—To any readers of *THE GARDEN* who may feel inclined to grow *Lilium giganteum* from seed, it will give me much pleasure to forward a packet of it on receipt of a stamped and addressed envelope. The seed has just been gathered in from a specimen which measured over 10 ft. high, and to which allusion is made in *THE GARDEN* (p. 536). I would recommend its being sown at once, under glass of course, and plenty of time allowed for germination, which possibly may not take place in less than a year's time.—EDWIN JACKSON, *Llandegai, Bangor, Carnarvonshire*.

Carnations from Seed.—Would you open your columns to the solution of the following enquiry, viz., the value of the advertised collections of Carnation seed? Collections of twelve varieties of all sorts of colours ornament our seed lists. Is there any, even the remotest, connection between the descriptions and the produce? None, in my opinion. I would much like the experience of others.—B. G.

Lantana Victoire.—This is an exceedingly pretty variety, and should find a place in every collection of these useful free-flowering subjects. The flowers are pure white with a lemon eye, and have a very chaste appearance, especially when expanded under glass in early spring. The *Lantas* are easily grown, and should be more frequently used than they now are for spring decoration, as many of the kinds exhibit shades of colour scarcely to be found in other flowering plants.—J. C. B.

Fuel for Saddle Boilers.—Mr. Simpson (p. 581) gives the preference to the old saddle boiler over all others because "there is no other boiler that presents so great a proportion of its surface to the direct action of the fire." It would appear from this that Mr. Simpson burns coal in his furnaces, and I should be glad to know whether he would recommend this system of boiler in gardens where coke is burnt. I have long been dissatisfied with the heat which my saddle boilers give, and recently was told that saddle boilers were only suitable for coal, and that if coke is used, the boiler should be directly over the furnace. Can any of your readers give their experiences of burning coke in the furnaces of saddle boilers?—A SUBSCRIBER.

MR. LANCASTER'S MARKET GARDEN.*

THIS comprises eighty acres, situated at Stratford, within four and a half miles of the General Post Office, and is, with the exception of a few pieces of land at Rotherhithe and Deptford, the nearest market garden to London. Three acres are meadow land and the remainder is closely cropped with various vegetables. The land is partly held on lease and partly upon a short tenancy, at rents varying from £5 to £6 per acre. Its soil is a dark-coloured loamy clay, heavy and naturally fertile, about 8 ft. in thickness, resting upon a peaty sub-soil 2 ft. in depth, lying on the gravel, upon the Woolwich Beds, or the Oldhaven Beds of the Lower Tertiaries, which crop up here and overlie the London Clay, forming a curiously irregular patch nearly two miles in length from north to south, and hardly a mile in width. Though heavy and difficult to work in wet seasons, this soil soon dries and becomes pulverised quickly and absorbs a deal of moisture. In Mr. Lancaster's words: "It is peculiar stuff to work and requires an apprenticeship before you can manage it according to the varying seasons. It is most prolific when there is some amount of heat, when we say 'things go mad.' I have had Veitch's spring-sown Cauliflowers measure 4 ft. round, and quite close, and Celery 1 ft. round, indeed like sturdy trees." Mr. Lancaster has with much ingenuity adopted irrigation upon his market garden most successfully in dry summers, having fixed a steam engine to pump up the water, and laid pipes and cut channels to spread it over the land. A wide sewer or watercourse whose water runs into the Thames intersects this land, and small ditches connected with this watercourse divide it at intervals. These formerly served as fences to part the fields when it was pasture land and grazed by cattle. In wet seasons like the last it happens that the water in these ditches overflows, and in this event the steam engine is used to pump it out. Mr. Lancaster said that he is the only market gardener, except those who have sewage farms proper, who systematically irrigates his land in dry seasons. "My neighbours," he added, "laughed at first when I began to irrigate, but the first season I did so turned out to be a very dry one, so that I had good crops when others were bad, and therefore made high prices, which stopped their laughter." When the judges went over this market garden the engine was pumping the surplus water away from the land. Only about twelve years ago the whole of this garden was Grass land, and has been gradually broken up by Mr. Lancaster. He has built a comfortable dwelling-house, with stables, sheds, greenhouses, forcing pits, and an engine-house, and has changed the land from average grazing land to highly productive, profitable market-garden ground, fitted with all appliances for its management. As the soil is heavy and lies wet in the winter and is unsuitable for growing winter greenstuff, so much so that Mr. Lancaster cannot grow his own Cabbage plants, it is found much better to let much of the land lie dormant during the winter, and to work it as hard as possible in the spring and summer when it has been dried by March winds. Therefore the system of cropping differs from that of ordinary market gardens, inasmuch as Radishes, Lettuces, Marrows, Cucumbers, spring Onions, Cauliflowers, and Celery are principally grown.

Celery is Mr. Lancaster's speciality, which he grows singularly well, and for which his soil is peculiarly suited. He has a reputation for Celery in Covent Garden, and almost invariably makes the top prices in the market. He either sows the Celery seed first in frames with a certain amount of heat, from whence the plants are put out into the rows, or the seed is sown in hot-houses having a high temperature, and the plants are pricked out into small frames close to the ground, with a gentle heat under them, and taken from thence for planting out. This plan answers well in cold, changeable seasons, as the plants are gradually accustomed to changes of temperature; but it entails a great amount of work, of which some idea may be gained when it is stated that it requires 10,000 Celery plants per acre, set at 1 ft. apart in the rows, and that Mr. Lancaster usually plants about forty-six acres, which would take 460,000 plants. London manure to the depth of 1 ft. is put into the trenches prepared for the Celery plants, and covered with soil. The trenches are 5 ft. 6 in. apart, and the distance from plant to plant in the trenches is 1 ft. Earthing up is done by hand gradually, three or four times, to suit the growth of the plants. Early in the next spring Radishes are sown thickly upon the spaces lately occupied by the Celery; or Cauliflowers or Coleworts are planted, all of which thrive wonderfully in the richly manured soil. Celery is grown again in the next season. In many parts of this land, where the soil is best suited for Celery, this crop has been taken now five years successively, the position of the trenches having been shifted each year, and Radishes and other quick-growing crops grown upon their situation in alternate years. The beds of Radishes are 4 ft. 6 in. wide, and 1 ft. is allowed for

the Celery trenches, so that in the autumn when the catch crops are gone the Celery has a space of 5 ft. 6 in. At the time of the first inspection over 5000 dozen of bunches were being marketed each week, and made from 6d. to 8d. per dozen bunches. They were Turnip Radishes, known as French Radishes in the market, of a bright pink colour, beautifully shaped and cutting firm even to the largest and oldest bulbs. As many as 1500 dozen bunches are occasionally grown per acre, but an average crop runs to about 1200 dozen bunches, a bunch being a good sized handful. In other parts of the land Coleworts, or Cabbages, or Cauliflowers were planted in the spaces between the Celery, and in one part there were rows of splendid Paris Cos Lettuces ready for tying, and the Celery plants between were looking fresh and vigorous. Near the house there were innumerable small frames set in rows with plants of Vegetable Marrows within them, which were covered with glass by night and served to protect the plants from the weather until they were well established. These plants were strong and luxuriant, and in fact were almost the only Marrows that the judges saw which looked like yielding a good crop. Rows of Osiers were planted at intervals in this place to serve as a shelter for Marrows, or Cucumbers, or other delicate plants that may be cultivated. Osiers are grown upon most of the market gardens in corners or wet places, to furnish twigs for bunching Radishes and other produce, and rods for making baskets. Near the Marrow frames were many hundred thousands of Veitch's Cauliflower plants in a seed bed, and many thousands in small frames with a little heat from manure under them, that had been transplanted from the seed bed, and were ready to go out into their places on the land, being splendid plants, showing no tendency to "run," and having well paid for their intermediate transplantation.

Mint and other Vegetables.—It was a novel experience to find two acres covered with Mint, with an abundance of leaves that seemed sufficient to supply all the lamb-eaters in London with Mint sauce. Although this bed of Mint was only two years old it was doomed to be dug up this summer, and tiny shootlets were being taken from it and set, 9 in. by 3 in. apart, in an adjoining piece of land to form a new bed. It was suggested that it was a pity to destroy such a wealth of Mint, but Mr. Lancaster inferred that he had already found it a satisfactory and sufficient Mint of wealth. There were three acres of Seakale, six acres of Horse-radish, which thrives upon this soil, one acre of Parsley, patches of Beet, and of Cabbages for pickling, and large beds of Rhubarb, and divers other things. Among the material Cabbages and Cauliflowers were plots of ground devoted to Moss Rose bushes. The Rhubarb plants are a sight to be seen. It is a peculiar sort of Rhubarb, and the judges saw nothing like it in their travels. Mr. Lancaster grows it about 4 ft. apart, and strips the plants bare of leaves twice and sometimes thrice in a season, leaving nothing but the main stem. Like all the other crops grown on this market garden, the Rhubarb is well manured each year with London manure.

Expenditure and Income.—As Mr. Lancaster does not indulge in the luxury of accounts, being, as he said, too tired to write after his marketing, for he and his daughter sell all his produce, no definite notion of the quantity of manure bought in a year could be obtained. Neither could the judges get any precise information as to the cost of labour, but they were assured, and can well believe from the amount of work that is entailed by such crops as Radishes, Celery, and Lettuce, that the labour comes to £50 per week during the summer and autumn months. Labour wages are rather higher than at Barking. Carters and skilled hands get from 20s. to 24s. per week. Ordinary labourers get 18s. per week, and both these and skilled labourers make considerably more at piece-work. Women earn 2s., 3s., and even 4s. per day. Seven horses of a good stamp are kept, which do all the work on the market garden and take the vegetables to the Borough and Spitalfields Markets in the summer, and the Celery to Covent Garden in the winter, when it sells best. The buildings are suitable and in good repair, and there are capital sheds for preparing and washing the vegetables for market, fitted up with boilers for heating water for washing the Celery and Radishes, which is a great comfort to the women in cold weather, and causes them to wash the Celery better. By putting this and that fact together it was gathered that an average crop of Radishes sown between the Celery would make at least £28 per acre: say 1100 dozen bunches at 6d. per dozen; and the Celery, planted in the rows between the beds of Radishes, would make from £52 to £60 per acre, taking an average of seasons: say from 1000 to 1200 bunches at 12s. per dozen bunches. Again, taking Lettuces and Celery together, an average crop of Lettuces, grown as Mr. Lancaster grows them, would be worth about £30 per acre. Or a crop of Coleworts and Cabbages grown with Celery would be worth from £25 to £30 per acre, plus the value of the Celery crop; so that even if the expenses amount to £40 per acre, there is still a good margin of profit.

* This gained the first prize last year in the competition for the premiums offered by the Mansion House Committee, in connection with the International Exhibition of the Royal Agricultural Society, for the best managed market-garden farm in one of the five metropolitan counties.

Seed Saving.—Mr. Lancaster grows his own seed, and is most particular in keeping his sorts distinct and true. He has improved his various kinds of vegetables by selection, by sowing the seed from the best plants with the required characteristics most strongly marked. His Celery, as has been mentioned above, is of particular excellence, and is well known in the London markets. Being of a good type, and carefully prepared for market, it generally makes rather more money than that grown by other market gardeners. The judges were much struck with the energy and skill displayed in the management of this market garden, as well as with the manifold indications of large profits made upon it. Much courage, capital, and ingenuity were required to change ordinary meadows in such a situation and with such surroundings into a garden of Cucumbers—a very oasis in a wilderness of building land.—*Royal Agricultural Society's Journal.*

MARKET GARDEN NOTES.

Economical Cyclamen Culture.—By the method generally followed by those who grow for sale Cyclamen seed is sown somewhere between the beginning of August and November, many large growers sowing in October in bottom-heat, so that the young plants are up and fairly in growth by December. Now, it will be easily understood that a Cyclamen seedling which in the last month of the year has not got beyond the seedling leaf will require to be pushed along briskly if it is to develop into a well-grown marketable plant by the following October, for by that time the plant should be formed and the first blooms rising well above the foliage. When the seed is sown in either August or September the young plants are of course that much forwarder, and by the time winter sets in are somewhat advanced beyond the rudimentary first leaf, and will in many instances be throwing up a third leaf, the bulbs having attained the dimensions of a good-sized Pea. Such plants as these, however much more forward they may be than those sown in October, require a long season of artificial warmth to bring them to the desired strength by the time they have to be shifted into their blooming pots, which, in a general way, may be said to be between the last week in June and the middle of July. If the grower wishes to obtain handsome, well-furnished specimens, the foliage extending over the rims of the pots, and carrying from five to ten dozen blooms, he will have to make the best use of the time at his disposal, and must keep up a constant growing temperature all through the winter and spring months. This necessitates a large consumption of fuel, for during January and February strong fires will, as a rule, have to be maintained to keep the temperature sufficiently high to move the little plants briskly along. I am much inclined to think that it is just at this period that many inflict an irreparable injury on their plants. The Cyclamen loves a moist, genial warmth, but when the necessary amount of heat is exceeded the leaf becomes drawn and weak, and every practical grower is aware how extremely difficult it is to bring back any plant into a sturdy hard condition when once the tissues have become weakened by too much artificial warmth in conjunction with an unduly confined atmosphere. A plant which, through over anxiety on the part of the grower, has been subjected to too great a pressure early in the year can scarcely be expected to respond to the genial temperature of the summer months, and often comes to a standstill just when it should move along most freely. Now I consider that it not only lies in the power of the grower to avoid much of the risk which forcing the young plants along at the earliest and darkest period of the year entails, but he may also curtail the labour expenses and the firing bill by at least one half. Let us suppose that the seed be sown early in June, a time at which no fussing about bottom-heat and no artificial warmth whatever will be needed. The young plants will be pricked out into 6-in. pots or pans—the latter most preferable in very free, well-sanded, but not too rich compost. They will be kept in a frame, but merely sheltered against heavy rains and shaded from hot sun, as the object is not to promote a rank growth, but rather to keep them dwarf, sturdy, and hard. By the month of November the bulbs will have come to the size of a Cob nut, and will have on each one some four and five stiff leathery leaves. Winter them in a frost-proof house, and about the beginning of March pot them off into small 3-in. pots, and give them a nice growing heat of 50° by night, and 55° to 60° by day until April, when these temperatures may be increased by 5°. Supposing that fire heat is more or less required until the latter end of May, and in most years such will be the case, it will be seen that the consumption of fuel will extend over a period of about three months, as against at least seven months when the seed is sown in the autumn, for be it remembered that at that time artificial warmth is needful in order to get the seed up well; whereas by sowing early in summer no such accommodation is required. It may be asked if the results are equally good when artificial stimulus is resorted to

at such a late period. I can conscientiously answer in the affirmative, for the best plants I ever saw in 4½-in. pots were thus grown; they began to bloom in October, gave a considerable amount of flowers for cutting, and were then marketed and sold at a good price.

Hamburgh Grapes in Autumn.—In spite of the large importations of foreign Grapes into this country, home-grown Hamburghs of good quality still command remunerative prices, and I think that I may with safety say that any grower who may not wish to be troubled with keeping his produce until a late period in the year, when naturally higher prices are to be looked for, may calculate upon a profitable return if he should determine upon marketing his fruit as soon as ripe. Let it be understood, however, that I am speaking of good Grapes only, for bad Grapes are often a complete drug in the market, and neither fruiterers nor salesmen care to be troubled with them. When the Hamburgh starts naturally it will in ordinary seasons ripen off about the latter end of August to the middle of September, and good, fresh fruit will then fetch from 1s. 6d. to 2s. 6d. per lb., extra fine samples of course commanding a still higher price. Now, in cutting the bunches as soon as ripe the grower obtains two very distinct advantages, which materially serve to compensate him for the comparatively low price obtained at that time of the year. In the first place, he sends to market the full weight of his crop, for I need scarcely remind your readers that from the time a bunch of Grapes is quite ripe until it is cut a gradual process of deterioration is going on. There is a sensible loss of weight by evaporation and decayed berries which, in the case of the Black Hamburgh, are sure to declare themselves, and also serve to diminish the weight of the crop. Then, again, a certain loss of quality must be counted on when the fruit is kept on into December; whereas, when cut in its prime, just as it finishes off, the grower has at least the satisfaction of knowing that his fruit has gone to market in its best condition. It is astonishing how quickly Hamburgh Grapes go back in quality, unless a large amount of care is taken with them in the late autumn months; unless the house is nearly drip-proof, and every means is taken to drive out damp as it forms, there will sure to be a certain loss of berry, and the fruit generally will lose its freshness and beauty; so much so, indeed, that I have known a week's inclement weather in November to take off 6d. per lb. from a houseful of fruit. I would therefore counsel those who may be growing Black Hamburghs, and particularly should they desire to use the house for any other purpose during the winter, to cut and market each bunch as it attains its full maturity. Taking into consideration the way in which home-grown Grapes hold their own against foreign produce, there is great encouragement for English growers, who may, unless affairs should undergo a sudden and unexpected change, safely rely upon getting a profitable return for time and labour expended, even should they confine themselves to the growth of such kinds as should be marketed as soon as ripe.

Tomatoes in Frames and Plant Houses.—The Tomato has within the last few years greatly increased in popularity in this country, with the consequent effect that its culture has been undertaken on a much more extensive scale by market growers generally. The popularity of the Tomato may be said to have set in with a sudden rush, and those who took the tide at its flow, and such as were actively engaged in the culture of this comestible, reaped for several seasons quite a golden harvest. A large Strawberry grower in the neighbourhood of London fills all his frames with Tomatoes as soon as the Strawberry crop is over. By the beginning of June the tan is cleared out and replaced with suitable compost and the young Tomato plants set out. This grower told me that Tomatoes grown in that manner were a good paying crop, adding that they were "much more profitable than Cucumbers." Another Strawberry grower of my acquaintance, and who grows his fruit in span-roofed houses, fills them with Tomatoes for the summer, and considers them a fairly profitable crop. The Tomato is, as is well known, liable to the attacks of a fungus, which often comes in such a virulent form as to sweep off the outdoor crop in a few days. This disease, in combination with the uncertain nature of our climate, will do much towards ensuring fair prices for fruit grown under glass. In some years when we are favoured with a very fine summer, prices will range very low, but those who may have glasshouses at their disposal by the beginning of June, and such is often the case where bedding and other plants are grown, cannot be far wrong in filling them with Tomatoes. Some years a good hit will be made, and at any rate it will be better to thus occupy them than to allow them to remain empty all through the summer.

Winter-flowering Carnations.—Few flowers are more in request than these in Covent Garden at the present time. They have been gradually increasing in favour for some years past, and are now considered indispensable by those engaged in the making up of

hand bouquets, button-holes, and floral decorations generally. When I mention that one grower cuts during the winter months some sixty dozen blooms daily, some conception will be formed of the favour in which this flower is held. I do not think that the market is ever likely to be glutted with winter-flowering Carnations, for their growth requires to be thoroughly understood before they can be made to pay. It is curious that many otherwise good plant growers fail with this hardy subject, or, at any rate, do not achieve success enough to make its culture satisfactory or profitable. The great point is to strike the cuttings early in the year, so that the plants get a long season's growth, so that they get well matured by the autumn. Some resort to layering, but this practice does not find favour with market and trade growers, who consider that cutting plants exhibit much greater freedom of growth. One of the finest collections I ever saw was at the Messrs. Lows', at Clapton, the foliage being broad and of great substance, and the plants so uniformly good that they might have been cast in a mould. When the winter-flowering Carnation can be thus grown it will give a good return for all expenses incurred in its culture, for the compact habit of the plant allows of the pots being stood together rather thickly, and strong specimens in 5-in. pots yield a large amount of flowers for cutting. There is, however, one point upon which I would warn the would-be Carnation grower, and that is, never to subject the plants when they have arrived at the flowering stage to a close, warm atmosphere. Such treatment can only yield disastrous results, for the Carnation is extremely impatient of undue confinement, and must only get just enough warmth to drive out damp and keep the plants from stagnating.

Rose Niphetos.—As the time for planting Roses has now arrived, it may be as well to remind those who contemplate going into the Rose trade that this variety takes the lead in the market. The demand for this Rose appears to be very great, for I hear that one great Rose-growing firm have at the present time 35,000 plants of it in pots, being just the half of their stock. This fact tells more than words could do of the estimation in which this variety is now held.

J. CORNHILL.

Byfleet.

The Year 1880.—The following remarks in reference to this were made at the last meeting of the Meteorological Society by the Rev. T. A. Preston, M.A., F.R.S.: The unfavourable season of 1879 produced very serious effects on vegetation, especially on trees and shrubs and their produce. The young wood was not ripened, and as a natural consequence the severe winter killed an enormous quantity of some kinds, and greatly injured others. Plants of the *Laurastinus* were generally killed to the ground, and in some districts the destruction of other shrubs was severely felt. Evergreens in many cases lost large quantities of their leaves; Hollies especially are mentioned by several observers, and Privet hedges were sometimes quite leafless. With respect to fruit trees, Apples and Pears in some localities (but not all) were hardly able to put forth any bloom, and the crops were consequently extremely poor. Wall fruit was also a general failure, but this was partially owing to severe weather when the trees were in bloom, for in some instances the show of bloom was all that could be desired. Gooseberries and Currants produced enormous crops, and Strawberries were very fine, but they lasted an unusually short time. Among the special features of the year may be mentioned the great quantity of certain insects. Aphides were in astonishing numbers in the early part of the year. The Apple shoots, before the leaves expanded, were in almost every case covered with them, and among wild plants the mealy Guelder Rose was especially attacked by them. Wasps, again, have been in extraordinary numbers, and dreadful accounts of them have been sent to the various entomological periodicals; their numbers appear to have exceeded all previous experience. The larvæ of the Gooseberry moth and of the Gooseberry sawfly have also been extremely destructive; and finally, as an undoubted result of the wet season of 1879, the larvæ of the crane-fly have been a perfect plague in some localities. The scarcity of small birds has been universally noticed; some, no doubt, perished from the cold, but vast numbers had migrated. The enormous numbers of larks which hastened to the eastern counties on the outbreak of cold weather was astonishing.

Wood Paving.—The advantages of this are now supposed to be apparent, and in consequence the authorities are adopting it throughout the country. But in Edinburgh they are about to remove wood paving from Queensferry Street and to substitute some hard stone. The street in question leads into Prince's Street, the principal thoroughfare of Edinburgh, and a large amount of traffic daily passes along it. No more eligible street could be found in the city to be made the subject of an experiment. The wood paving of the street did not wear well, and it has to be removed, but some of the Town Council maintain that the work was not carried out satisfactorily, and that if Beech or Red Pine had been used the result would have been more satisfactory. But this theory was opposed by a large majority, and stone gained the victory.—*Architect.*

THE GARDEN FLORA.

PLATE CCLXV.—NEW HERBACEOUS PÆONIES.

THE herbaceous Pæonies now in cultivation have been obtained from crosses made between *P. edulis*, *P. officinalis*, and *P. sinensis*. The first good varieties originated with Parmentier, of Belgium, V. Verdier, of Paris, and Foulard, of Mans; the more recent ones with Calot, of Douai, whose work in the way of hybridising has been continued by Crousse, of Nancy. These growers have obtained an extensive variety of colours—white, pale yellow, salmon, flesh coloured, and a numerous intermediate series between pale pink and the brightest purple. Among the oldest varieties the following are the most remarkable, viz., *grandiflora*, double white; Louis Van Houtte, *papa-veriflora*, rubra triumphans, sulphurea plenissima, rosea superba, Zoé, Mme. Calot, Gloria Patriæ, and Prince Troubetzkoi. The most beautiful among those of a more recent date are: *Arthémise*, *atrosanguinea*, *Virgo Maria*, Mme. Lemoine, *L'Espérance*, *Triomphe de l'Exposition de Lille*, *Jeanne d'Arc*, Eugène Verdier, and Mme. Lemoinier; and among those most worthy of notice may be named Mme. Lebon, Marie Lemoine, Henri Laurent, Mme. Jules Elie, multicolor, Stanley, Charlemagne, Mme. Geissler, Bernard Palissy, and Van Dyck. All these varieties are equally robust as the types which have produced them. In winter no care need be taken to preserve them, as they do not suffer in the least from frost, however severe it may be. When new varieties are desired they must be raised from seeds, which should be sown as soon as ripe in the open air or in pans. But in work of this kind one must have patience, for six or seven years often elapse before the seedlings flower. Varieties already in cultivation are increased by dividing the tufts, taking care to preserve a good eye at the crown in the case of *P. sinensis*.

Culture and Position.—Herbaceous Pæonies succeed in any soil and in any position, but a good moist loam, particularly when enriched by the addition of cow manure, is the soil best suited to them. They can be planted at any time of the year, but from October to April is the best. Take care to have the ground well prepared for their reception by manuring and trenching it to the depth of about 3 ft., and on no account should they be planted nearer than 4 ft. apart in each direction. They must not be expected to flower well before the second or third year after planting. Open-air culture renders the plants robust, and they do not require to be shaded from the sun until they flower, when some slight shade prolongs and preserves their delicate tints, and also enables the flowers to become more thoroughly developed than they otherwise would be; watering the plants judiciously now and then as soon as the buds are well formed with liquid manure also greatly benefits them. It is likewise, of course, necessary when the tufts have become very strong, and have impoverished the soil, to separate and transplant them on fresh ground.

VICTOR LEMOINE.

Nancy.

PIEDMONT GROUNDSEL.

(*SENECIO BALBISIANUS*.)

THERE are many beautiful plants which one never sees except in some richly-stocked botanic garden, or in that of some amateur who makes plants a special study. A case in point is the plant here illustrated, which last year when in flower in Mr. Joad's garden at Oakfield, Wimbledon Park, attracted considerable attention. It is one of the species of *Senecio*, or, according to some, *Cineraria*, which abound on the European Alps. This particular species inhabits elevated districts in Northern Italy, particularly Piedmont. It grows from 3 in. to 9 in. high, and is furnished with hoary root leaves. The flowers, which are life-size, are borne in the manner here represented. The colour is a golden-yellow, and, contrasted with

the foliage, has a remarkably bright appearance. It flourishes on well-drained rockwork in light rubbly soil in an exposed dry situation.

W. G.

THE ALPINE FLORA OF FORFARSHIRE.*

HAVING found our way up Glenisla and passed the shooting lodge of Tulchan, we ascend Monega, whose western shoulder extends to the head of Glen Caenlochan. When within 500 ft. of the summit *Azalea procumbens* is met with, its pretty pink flowers creating quite a surprise to one who has never seen it before. It is very abundant on the summit or "riggin" of the hill, on most of the Forfarshire hills, and indeed on many of the hills of the Grampian range, but never lower down than 2000 ft. above sea level. Dr. McMillan remarks that "in this country we see it only in tufts or fragments, which, however beautiful, give no idea of its exquisite loveliness when growing, as on the Norwegian mountains, in solid masses of colour almost acres in extent." It is not found in England or Ireland. In going over the hill attention is attracted to the vast masses of *Alchemilla alpina* (Alpine Lady's Mantle), glistening with a silvery sheen, literally carpeting the summits and mantling the hillsides, descending far into all the highland valleys. Keeping along the western summit of Monega for a mile or two, in order to reach the head of Glen Caenlochan, along the edge of the hill *Sibbaldia procumbens* is met with in considerable profusion, never descending far from the summits; also *Gnaphalium supinum* (Dwarf Cudweed) in small whitish downy tufts; *Salix herbacea* (the Arctic Willow) in great profusion on this and all the summits. *Rubus chamaemorus* (Cloudberry, or "Aive-rin" as the shepherds call it), with fruit in form and size somewhat like a Raspberry of a fine amber colour, grows abundantly on boggy places on the summits and in the highland valleys; as does also the *Arctostaphylos Uva-Ursi* (red Bearberry). Several plants have been mentioned, and others may yet be noticed as occurring on or near the summits, which by reason of their fecundity descend far into the highland valleys, but as they are never found beyond, this would indicate their alpine origin, as having travelled downwards in contradistinction to plants of lowland origin which have travelled upwards. The plants of interest met with on the actual summits are comparatively few, which is not to be wondered at considering the rigour of the climate and the want of shelter, where only plants of the hardest constitution could exist.

Glen Caenlochan may be descended by following the course of the first burn met with at its head. The banks of these mountain rills, and the ledges of craggy rocks between, at the head and south side of the glen, in sheltered nooks, are rich in alpine plants. Descending one of these rills, we are likely to meet first with *Veronica humifusa*, *V. alpina*, *Epilobium alpinum*, *E. alsinifolium*, and *Cerastium alpinum* (Hairy Alpine Chickweed), an interesting plant growing in woolly tufts, with large pure white flowers. Here also we meet with no fewer than five species of Saxifrage, which may be all collected within a space not far apart from each other, viz., *Saxifraga nivalis* (Clustered Alpine Saxifrage), being the rarest of the five; *S. stellaris* (Starry Saxifrage), *S. hypnoides* (Mossy Saxifrage), *S. aizoides* (Yellow Mountain Saxifrage)—this descends far into the highland valleys, luxuriating in moist gravelly banks—and *S. oppositifolia* (Purple Saxifrage), with wiry trailing stems, not unlike wild Thyme, and a profusion of purple flowers of all shades, and it is occasionally met with having white flowers. Unfortunately, it is seldom seen in its glory, as its flowers open with the melting of the

snow; in cultivation it begins to flower about the end of February, and continues for several weeks quite a gem of beauty. It is very abundant on most of the Scotch hills; I remember seeing acres of it on one hill in a secluded spot, where it formed the prevailing turf. Another gem is *Silene acaulis*, cushion pink, in dense masses of vivid green. It grows in every conceivable position, horizontal or perpendicular, its tufts sometimes hanging by the tap-root from a narrow chink in the rock. Sometimes it spreads over the hillsides in sheets several feet across, its bright pink flowers nearly eclipsing its foliage. High up on rocky ledges a plant with sheets of large white Strawberry-like flowers next attracts attention; this is the *Dryas octopetala* (Mountain Avens); it is not particularly abundant here, but in Sutherlandshire it clothes the hillsides for acres, descending to the roadside by the shores of Loch Assynt. A pretty dwarf Willow amongst many others is also met with high up the hillside, *Salix reticulata*, having peculiar round-netted leaves and prostrate stems. But time would fail to particularise every plant, so I must pass on with a bare enumeration of the host of good finds to be made here. Proceeding with our search, we meet with *Veronica saxatilis* (Blue Rock Speedwell), one of the prettiest of alpinines; *Potentilla alpestris* (Orange Cinquefoil), *Sedum rhodiola* (Rose Root), so called from the odour of Roses which its roots yield when freshly broken; *Thalictrum alpinum* (Alpine Meadow Rue), *Oxyria reniformis* (Mountain Sorrel),

Erigeron alpinus (Alpine Fleabane), *Saussurea alpina*, with flowers scented like *Heliotrope*; *Thlaspi alpestre* (Alpine Penny Cress), *Parnassia palustris* (Grass of Parnassus), *Tofieldia palustris* (Scottish Asphodel), *Trollius europeus* (Globe Flower, or "Luckengowan"), is found growing abundantly high up on moist rocky ledges, but as it is sometimes found in lowland woods and streams, I am not sure whether it can be ranked as a true alpine; the same remark may apply to the pretty *Trientalis europæa* (European Chickweed Winter Green), with white starry flowers, sometimes running into pink, which is found from the summits of the highest hills down to the lowland woods. *Gentiana nivalis* (Snowy Gentian) is one of the rarest gems of our alpine flora, this and Ben Lawers, in Perthshire, being the only known localities for it in this country. The curious little *Drosera rotundifolia* (Sundew), growing in bogs; *Viola lutea*



Piedmont Groundsel (*Senecio Balbisanus*).

Meum athamanticum (Bawd Money, or "Micken" as it is called by the highlanders), *Pyrola rotundifolia* (Round-leaved Winter Green), *Pyrola secunda* (Serrated Winter Green), *Gymnadenia alba*, *Malaxis paludosa* (Bog Orchis), are all met with in the valleys of Glenisla and Clova, but can only be ranked as sub-alpine.

Of alpine Ferns, *Cystopteris montana* (Mountain Bladder Fern) grows on the south side of Glen Caenlochan, but is extremely rare, as are also *Woodsia elvensis* and *W. hyperborea*, which both occur here, and also in Glenphee. The other noticeable alpine Ferns found here and also in the Clova Hills are *Allosorus crispus* (Parsley Fern), *Polystichum Lonchitis* (Holly Fern), *Asplenium viride* (Green Spleenwort), and *Polypodium alpestre* (Alpine Polypody). The remarkable *Polypodium flexile*, which some botanists rank only as a variety, or at most as a sub-species of the last, is found at the head of Glen Prosen, the only other known locality for it being Ben Alder, in Perthshire.

Lychnis alpina (Red Alpine Campion), a tiny plant a few inches high, with pretty rose-coloured flowers, grows on Culramnoch. The summit of this hill, which is 3000 ft. high, is flat and denuded of soil, except that the hard bare rock crops up and is weathered so far as to produce a sprinkling of gravelly soils, which fills the damp crevices. In this, within a very limited space, and at a similar spot about half a mile to the north-west, a few plants of the *Lychnis* are growing here and there, and it seems marvellous how it could have existed and propagated itself confined to these spots during the long

* Read the other day at a meeting of the Dundee Horticultural Association by Mr. Edward Moir, Newport.

ages. This is the only known locality for it in Scotland. A similar plant is found on a crag in Cumberland. Some years ago I had seed of *Lychnis lapponica* from Mr. Thompson, of Ipswich, which produced plants differing in nothing that I could see from *L. alpina*. Side by side with the *Lychnis* are found other two plants, which are also found on our sea-shores, but not in any intermediate place between the summits and the shores. One is the *Armeria maritima* (Sea Pink), the other *Cochlearia grænlandica* (Scurvy Grass); but so dwarf and stunted in appearance are they that some botanists make them out to be alpine varieties of the coast plants, but the difference can only arise from the locality, as I have transferred plants from thence to the garden, where they speedily grew into strong gross tufts, differing in no respect from the ordinary type. Still another plant is found here, *Cherleria sedoides* (Mossy Cyphel), which might easily be passed by as a dense tuft of Moss, were it not for its small greenish flowers, scarcely observable without close inspection. There is a peculiarity about this plant, and that is, it is not found anywhere north of this; Dr. McMillan hazards the opinion that Ben Lawers, where it grows in immense profusion, may have been its original centre of distribution, and that it is older than any of our alpine plants. Glendole must next be reached. Here and there on the way, and on boggy places on the "riggins," look out for the curious little *Cornus suecica* (Dwarf Cornel), having white flowers with a dark or purple eye; it is not very abundant, and requires a good look out to detect it. On the banks of the Feula Burn two rare Grasses are met with, viz., *Alopecurus alpinus* and *Phleum alpinum*.

Astragalus alpinus (Alpine Milk Vetch) may be found in limited quantity high up on the cliffs of Craig Maid; it is very dwarf, with delicate-looking, white flowers tinged with purple. There is only one other recorded locality in Britain for this plant, viz., among the neighbouring Braemar mountains, on the summit of the little Craigendal, where it grows in moderate quantity mingled with the short turf. At the base of Craig Maid, amongst Moss-covered rocks, in one or two spots we meet with very sparingly, growing intermingled with *Vacciniums*, the *Linnaea borealis*, or Twin Flower. This little gem with its pink fragrant bells is also occasionally found in Fir woods near the lowlands, which might make one doubt its being a true alpine; but it comes to us from Norway, where it grows in great profusion. On the south side of Glendole is found the stateliest of all the alpine plants, *Mulgedium alpinum* (Blue Alpine Sow Thistle), growing 2 ft. to 3 ft. high. It is also found occasionally in one or two other localities among the Clova and Caenlochan hills and on Lochnagar, but nowhere else, and, being so rare, specimens of it are eagerly sought after. At the foot of Glendole, wending our way round the base of Craig Rennet to the right, Glenphee is entered, distinguished by the fine waterfall at its head, and here also many of the before-mentioned plants may be found, with the addition of one plant which is found nowhere else in Britain, the *Oxytropis campestris* (yellowish Mountain Oxytropis), a dwarf Vetch-like plant, with hairy leaves and pale yellow flowers somewhat like a Clover. Here, in a comparatively circumscribed space, as in the case of the *Lychnis*, it has continued to reproduce itself from time immemorial, and may fairly be called the rarest British plant.

I think I have with few exceptions enumerated nearly all the most remarkable alpine plants of the county, which, it will be seen, are comparatively few in number of species, but rich in what constitutes much of their attraction and value, the exceeding rarity of many. With perhaps the single exception of Ben Lawers, there is no district in the country that can vie with this as containing so many rare plants of the first order. With one or two exceptions, all the plants I have mentioned are quite amenable to cultivation, taking care to keep them free from weeds and rampant neighbours. Ten or twelve years ago I transferred a little plant of *Azalea procumbens* from the hills to my rockery; it is now 18 in. in diameter, without a break to mar its appearance. I have sheets of *Dryas octopetala* 3 ft. across, and plants of *Silene acaulis*, *Linnaea borealis*, *Saxifraga oppositifolia*, *Oxytropis campestris*, *Astragalus alpinus*, &c., &c., growing luxuriantly.

Kemsley and Howe Insect Destroyer.—I have tried this mixture on several kinds of plants, fruit trees, &c., and it certainly is an excellent cure for mealy bug, thrips, scale, American blight, or any of the insect pests that are so great a source of annoyance to plant and fruit growers. For hard-wooded plants, half-a-pint of the mixture to from four to six quarts of water, clears thrips off *Azaleas*, or forms an excellent wash for Vines, Peach trees, &c., at their winter dressing, or for Apple trees afflicted with American blight. In the case of soft-wooded plants, such as *Cinerarias* or *Pelargoniums*, half-a-pint of the mixture to from six to eight quarts of water, will effectually clear them of fly without damaging the leaves. The contents of the bottle should be well stirred

before being mixed with the water, so as to thoroughly mix the ingredients, but after it is mixed any that is not used may be kept for any length of time if bottled and corked up tightly. For soft-wooded, hairy-leaved plants, it is advisable to dip or syringe them, or apply the mixture with a very soft brush, as sponging is liable to injure the leaves, and by dipping or syringing every crevice may be reached. In the case of plants that have been badly affected, it is a good plan to have some rather extra strong for washing the stems and hard-woody portions, as the eggs of insects are generally secreted there, and if not destroyed they bring forth another brood in a few days.—J. GROOM, *Linton, Kent*.

THE ROSE GARDEN.

TEA AND OTHER ROSES ON THE EXTENSION SYSTEM.

HORTICULTURISTS are familiar with the extension system of Vine growing. Considering the strength and running power of many of our Tea and other Roses, it is surprising that so little has been said in print, and even less done in practice, in giving more freedom and larger liberties to the queen of flowers, for doubtless the one thing many of our stronger Roses need to sustain them in health and brighten their beauty is running room, higher, wider space. The nature of most of our best Roses is generous, free, large. They were giants in days when Roses were more wild and free than now, and when pruning knives, scissors, and pincers were all but unknown. Now, under the name of high culture we too often find our finer, freer Roses dwarfed into pigmies to the destruction of every trait of their true character and the shortening of their lives. A more highly cultured taste, as well as the nature, habits, and wants of the Rose, cry out for more room. The less training, as a rule, and the less stiff and formal the better. There are few Tea or Noisette Roses that are allowed to run well but will flower freely afterwards. The glorious Cloth of Gold was cramped out of cultivation. Where it has plenty of room, not even *Maréchal Niel* is quite a match for Cloth of Gold; and even the *Maréchal* himself needs ample space to do it justice. In many instances it, too, has been cramped to death. The same holds good of *Solfaterre*, *Triomphe de Rennes*, *Lamarque*, climbing *Devoniensis*, *Souvenir de la Malmaison*, *Homère*, *Madame Bravy*, and even the *Gloire de Dijon*. True, you can hardly kill the latter, but if you wish to see it in its full beauty and grandeur it must have ample space. See it as a stunted dwarf or standard and contrast this with its covering a wall 10 ft. high and as much wide with its flowers, and note the wide difference, which is all in favour of the extension system. The same holds good, though in a lesser degree, of Perpetual Roses. Contrast standards or dwarfs of the ordinary description of such well-known favourites as *Charles Lefebvre* (not the climbing variety) and *La France* with the same varieties grown freely on walls, and, excepting that the flowers are of the same colours, one would scarcely tell them to be the same varieties. Even the very old *Rose Coupe de Hébé* on a wall, or allowed to form a huge bush in a shrubbery or on the Grass, assumes a dignity and importance that no one would think it could grow into who were accustomed to see it only in its small state. This extension of Roses into masses for effect, either on walls or in the open ground, has been all too little attended to by Rose growers generally. We can hardly expect growers for sale to go largely into the extension line, as it would hardly pay them; and private growers have been so intent in developing individual flowers to show size and form, that they have had little time and less inclination to bestow on the extension of individual plants to their utmost capacity. So greatly has this branch of Rose culture been neglected, that our best examples of the extension system of Rose growing are almost confined to those shown in pots at our great exhibitions by the Messrs. Paul, Turner, Veitch, and others.

Wall Roses.—But surely the finest specimen Roses ought to be found on the walls and in the grounds of our private gardens. Occasionally one meets with plants of the *Maréchal Niel*, *Cloth of Gold*, *Homère*, &c., covering areas of wall of 100 or more square feet, but such successful examples of the extension system are as rare as they ought to be common. Walls for Roses are almost invariably too low. Those who have not tried them have little idea of the enormous climbing powers of the Rose. All they need to enable them to furnish walls or houses from 10 ft. to 30 ft. high is good borders to start with

and liberal feeding with liquid manure during the growing and flowering periods. It is astonishing what liberal returns these large Roses make for the mere room and liberty to grow afforded them. I have counted the shy-flowering Cloth of Gold by the hundred blooms at a time, as it proudly enwreathed the greater part of the front of a lofty mansion with its fine foliage and magnificent golden flowers. We have a Homère here that covers a large portion of the side of a lofty stable wall with straw lofts over it which yields hundreds of blooms in summer and autumn, the latter all perfect in form and matchlessly and delicately marked and mottled in colour. This with several others grown on the extension system are really of more use to us for cutting than all the other Roses—numbering at least a couple of thousand—in this large garden. I have often regretted the utter waste of wall space in kitchen and fruit gardens in vain attempts to grow Peaches and other tender fruits in localities totally unfit for them. How much more pleasant, as well as profitable, to clothe these high walls with Roses on the extension system! Allow each an area of from 50 ft. to 100 ft. or yards, according to circumstances. Even where no such means of growing specimen Roses were available, there are few gardens or demesnes in or about which sufficient bare or uselessly encumbered walls or roofs could not be found one or many full of extended Roses. In many localities, too, most Roses would do almost equally well and prove yet more telling on the Grass or in borders. Each specimen should have from 1 to 3 cubic yards of good soil to start in. The chief point afterwards is to let them alone. The Roses would speedily grow into specimens, as profitable as they would be picturesque, while the mere presentation of many of our old and not a few of our new favourites in such novel and striking lights would hardly fail to increase the love for and extend the culture of the Rose.

D. T. FISH.

PRUNING HARDY ROSES.

THIS may now be proceeded with at any time when the weather is open. Nothing can be worse than the practice, all too common at one time, of turning out to prune Roses or other trees or plants during frosty weather. When the ground was too hard to dig, the pruning of hardy plants was proceeded with; the result was breaking rather than pruning, and almost every cut of the knife left more or less of a jagged wound behind. The raw cuts seemed to shiver with disease or die outright, and the consequences to the plants were most disastrous. No one should ever cut a Rose or any other plant in a frozen state. But with open weather it is a good rule to prune all hardy Roses before the end of the year. The term "hardy," however, in this matter must not be held to include Chinas, Teas, Bourbons, Noisettes, nor Hybrid Perpetuals. Most of these are better pruned in February, March, or April than in December; but all summer Roses, Austrian and other Briers, Moss, and climbing Roses may be pruned at once. I also prefer pruning to any other method of cutting. The knife, and knife alone, makes the cleanest cut, leaves the least raw surface, and gives no bruise to wood or bark in the act of cutting. It cannot be too sharp, nor can the need of sharpness be too deeply impressed on amateur Rose growers, for it may be boldly affirmed that for an amateur who fails to grow Roses for lack of skill half-a-dozen fail through wretched tools. Only this summer, when judging at a provincial show, an amateur pressed me hard to insert a few Rosebuds. Unfortunately, I had left my budding knife at home. A box of tools was brought out containing several knives, each of their edges visible at several yards distance. After vain attempts at sharpening one or more on a doorstep, the edge of the best one turned up at the bud and bark of the Rose as if they had been polished steel, and the hacking and cutting to get half-a-dozen buds roughly inserted was harder work than judging all the classes of a provincial show, with its four well-filled classes of amateurs, gentlemen's gardeners, nurserymen, and cottagers. If those buds have taken, it is in spite of the most wretched iron knives that were ever palmed on amateurs. A good knife is quite half the battle in budding as well as pruning. The cut should be short and always made from the lower side of the shoot at a sharp angle towards the top. This keeps the cut dry, a great help towards healing it. Everything of scissor form, even the most improved French secateurs, leave wounds behind. The cut is also less smooth and more slow to heal. The knife in skilful hands is also the fleetest as well as the cleanest of all cutting implements, and it cannot be too sharp nor good to prune Roses well. The mode and extent of pruning must vary widely with the Rose pruned and the objects of the cultivator. In general terms Roses may be said to be pruned to keep them within bounds to improve the

quality of their flowers, to preserve the form or vigour of the trees, and to remove weak, useless, or dead wood.

Keeping Roses within Bounds.—Many of these would grow themselves almost out of the garden were they not pruned, for not a few Roses are giants. These would overrun others, and speedily grow out of all reasonable bounds were they not restrained by the knife. Even more moderate-growing Roses may make several feet of wood a year, and need restraint unless only a few are to be grown in any one garden. No doubt there is strong tendency to plant Roses too closely together, and not a few gardens would look richer and better with fewer Roses allowed to grow larger than with a crowd of smaller Roses always threatening each other. But while the present modes of growing Roses continue, a considerable amount of pruning will be needed to keep each in its place, and in due proportion to others.

Pruning to Improve the Quality of Rose Blooms.—On most Rose shoots there are probably from six to a dozen in embryo. Were all these allowed to develop, the blooms must necessarily be smaller than if only one or two of them were allowed to develop into flowers. Pruning in, so far as it reduces the number of flowers, concentrates the force of the plant, and thus heightens the colour and enlarges the size of the Roses. This is so obvious as to need no proof. The shoots of summer Roses, such as the Cabbage and Moss, are spurred back to two or three buds, or even less. Each of these produce one or more flowers of higher quality than if the entire shoot were left intact. The same principle is kept in view in the pruning of other Roses, though in some varieties feet or even yards of young wood may be left instead of eighths or quarters of an inch.

Pruning for Form and Vigour.—This is absolutely necessary in gardens, in shrubberies, and in woods, and in the case of isolated Roses on turf; the more the trees or bushes are left to themselves to wander freely as they list, the more artistic and beautiful the effect. But generally in gardens Roses must be pruned into form and kept in shape afterwards by the knife. No doubt many of them are over-pruned, all the grace and not a little of the beauty cut out of them. Still, it need not be so. Pruning may be made to heighten beauty as well to mar it. And then we prune for vigour as well as form. By cutting out exhausted branches we cause young and more vigorous ones to spring forth from their base, and thus force the Rose to renew its youth at the point of the knife. But this brings us to our last, the

Removal of Weakly, Worthless, Unsightly, and Dead Wood.—No one can object to this sort of pruning, as it at once improves the appearance and the health of our Roses. Few things are more unsightly than weakly, worthless, or dying branches among Roses, and all such should be carefully removed at the annual winter pruning. The plants being leafless, every imperfect part can be the better seen. In fact, Roses carefully pruned every year should never show such imperfections. As soon as a branch fails it should be pruned out before it becomes diseased. Treated thus, the very weaknesses of Roses become tributary to their strength, for though new Roses do not spring from the ashes of dead ones, yet will fresh strong shoots leap forth from the base of weakly ones promptly removed at the annual prunings.

D. T. FISH.

Tea Roses from Cuttings.—My experience of Tea Roses—especially of those grown in a cool house or on walls—is that cuttings may be put in twice a year. The wood that has produced blooms makes excellent cuttings in the summer; and these will do well if put into a north border, with some sharp sand in the bottom of the trenches; most of them will root enough to enable them to be lifted and potted late in the autumn. It would be still better if these cuttings were put into a cold frame, looking north, as in this they might remain, and get more fully rooted, till the following spring. From a house it is always possible to get plenty of cuttings at the end of May. At this time of the year, after the summer growth is well matured, all Tea Roses need some thinning, and some of the stronger growths perhaps must be shortened. From these thinnings plenty of good cuttings may often be obtained, which will do well if put into a frame or in a low house, where a soil bed is specially prepared for them. All kinds of Rose cuttings are best if protected from excessive cold rains and severe frost—in fact, if under cover, their tendency to make root is greatly helped. In putting in a quantity of cuttings, some will be less matured than others, and may fail. They will, however, be more likely to make plants if protected from hard weather. It is a great gain to get Roses on their own roots, as, if killed to the ground by severe frost, they will often throw up suckers, and soon become as good plants as ever. The sucker is one of the modes of increase in the Rose, but it is a mode that can only be utilised with plants that are upon their own roots.—A. D.

Yellow Provence Rose.—The loveliest sight I ever saw among Roses was this in bloom at Burghley. The only way I could account for its flourishing there so freely was its being rooted into an old stone wall which stands in front of the gardener's house.—B. B.

TREES, SHRUBS, AND WOODLANDS.

THE PAPER MULBERRY.

(*BROUSSONETIA PAPYRIFERA*.)

The Paper Mulberry, a small deciduous tree, is a native of China, and nearly allied to the common Mulberry. Though there are few gardens in which a fully-grown specimen of it is ever seen, it is, nevertheless, a handsome tree, furnished with large, deeply-lobed leaves, and as it grows rapidly, and is perfectly hardy, it makes a fine tree for planting singly on lawns. One of the largest specimens of it in the country is at Kew, but it is a very old tree, and beginning to assume a decrepit aspect. Apart from its use as an ornamental tree, it is in its



Paper Mulberry (*Broussonetia papyrifera*).

native country most useful, the fibrous bark of the young shoots being employed largely by the Japanese and Chinese in paper-making, a purpose for which they cultivate it much in the same manner as Osiers are grown in this country. W. G.

AN EPPING FOREST SCHOOL.

THE woods and forests of England are a source of public and private profit. It cannot be denied that much of our too extensive waste lands might be planted with timber. There is not, however, in our islands any institution devoted to the training of foresters. Those required for our Indian empire are sent at a considerable expense to be trained in France. I have elsewhere urged that the Government should at least subsidise a school of forestry, which might be affiliated to the University and Arboretum of the city of Edinburgh. It cannot be denied that our most able foresters, like our most successful gardeners, hail from the land that Dr. Johnson taunted with having to import its walking-sticks. Still, the claims of Edinburgh do not, I think, necessarily militate against those of Epping, which I confess that, when writing in the *Journal of Forestry*, I overlooked. Scotland is geographically within the belt of Conifers; England in that of deciduous trees, *Quercus Robur* mingling in the south with *Quercus Cerris*, the Beech, and the more southern

Chestnut. The soil of Epping Forest is perhaps better suited to broad-leaved trees than to Conifers; but the London clay, Bag-shot sands, chalky boulder clay, glacial gravels, and the brickearths and gravels of the Thames and its affluents afford a considerable variety in this respect. There is here a real forest and no mere arboretum. The proximity to the metropolis would afford important facilities in the way of economically securing the services of competent teachers of the sciences cognate to practical forestry; and last, but not least, we have a wealthy and public spirited corporation to whom we can apply to carry out the scheme, or at least to take the initiative in the matter. However, as a British school of forestry has been talked about for some years, it is about time something was done about it. G. S. BOULGER.

144, Kensington Park Road, W.

THE CONIFER MANIA.

WE hear from some of the large Northampton nurseries that the Wellingtonia finds no favour there. The same is the case with some of the other "fashionable" Conifers. This is not to be regretted, for there never was a greater mistake than dotting over the garden landscape with a number of really unproved Conifers—unproved as regards their hardiness and true character in this country, or even as regards their habit and beauty in England. They have partly been the cause of the neglect of our own trees, and also of those of North America and North Asia, which thrive here as well as our European trees. The fact that these half-hardy and little-known Conifers do well when young, or promise well in southern and favoured spots, is no reason why they should be chosen for the most important positions in gardens or parks generally. But even where they seem to do well, they are, as seen here, very insignificant to any one who knows them in their own country. A variety of causes are against the healthy development of Coniferous trees in the generality of our gardens. Chief among these is the fact that the Pines of the great hills are generally trees that receive a large amount of water at all seasons, and that the places where they are planted in the plains, where our gardens are mostly situated, are frequently exposed to drought, not merely in summer, but sometimes in winter and spring also. Thus it happens that a tree, naturally hardy enough, may go rusty and sickly from too little water, at a time when on its native hills it would be buried deep in snow. Of course, there are some types which do nobly with us, and those we can never make too much of, such as the Cedar of Lebanon in many districts, and the Scotch Pine, also the Silver Fir. If we placed these well, and grew them as well as we might, there would be less need to trouble about a great variety of new and untried kinds. To give them room enough, and, above all, to group them in a bold, natural, and picturesque manner, should be the aim. Some, it is true, suffer from the want of a ripening sun in autumn, but a great majority from want of water. A great number of these trees being extremely sensitive to smoke, which unfortunately abounds in many of our gardens near all large towns, is another misfortune for them. They perish where deciduous trees would not take the least notice of the smoke, for the good reason that they are at rest when the smoke is abundant.

Frequently these poor rusty Conifers take up the places that ought to be given to fine flowering trees that would thrive. It is not only because they do badly that we object to them, but their form is far inferior to the native tree, those usually planted being extinguisher-like in shape, and having frequently no pretension to beauty of form in the sense that a really fine tree has. The Fern-like grace of a young Conifer, which charms the gardener, is only the seedling stage of the plant. When it begins to do what those trees frequently do in their native countries—that is to say, lose their lower branches and form a naked stem—people suppose that it is getting out of condition, and begin to cut it back. It is the nature of many Conifers, and especially those from the western coast of America, that are now so common in our gardens, to rush up to a great distance with a perfectly naked stem. In other countries, and with our common hardy Pines, it is the crowding that causes the naked stem, but in the sierras of California we have seen trees without a single branch for 100 ft., which stood as clear of neighbours as Nelson's pillar does. It is, in fact, the nature of many of those trees never to make large branches, but to have all their wood, so to say, absorbed in one straight stem. There is a certain number of these trees which no doubt experience will guide us to, and which will have valuable qualities for our woods or parks; but our advice generally is, wait till you are quite sure of them before planting. Large sums invested in planting Wellingtonia avenues and the like might have been put to a much nobler use.—*Field*.

Black Alder (*Prinos verticillatus*).—How very beautiful this is looking just now, especially on low grounds! In clumps and as single plants it seems to warm up the embrowned landscape, and remind one of a warm autumn sunset. Is there a more ornamental berry-bearing plant? One could almost regret that they are native plants, as otherwise we might sometimes see them in the border or on the lawn. Though usually found on low and moist ground, I have seen many a fine specimen growing on the upland. I use it for lawn planting, and shall continue to do so, as I find it to do well, besides being exceedingly ornamental at a time when most other plants have taken on the sober hues of winter.—*Rural New Yorker*.

Scarcity of Holly Berries.—I am sorry to say we, like Mr. Fish, have no Holly berries. I have not seen a score this season, although the common Holly is to be seen everywhere in this neighbourhood as hedges as well as trees by the roadside; there are, however, no berries to be seen on any of them.—*JOHN CROOK, Farnboro'*.

Sawdust in Propagation.—Mr. David Thomson has been praising in a contemporary the use of sawdust for striking cuttings. It is commonly employed in that way at the Truffaut nursery at Versailles and other nurseries near Paris, and by its use the many excellent fine-leaved plants which M. Truffaut grows for the Paris market are rapidly advanced through their early stages.—T. H.

THE INDOOR GARDEN.

THE CLOVE TREE.

(EUGENIA CARYOPHYLLATA—CARYOPHYLLUS AROMATICUS.)

AMONGST plants belonging to the Myrtaceæ, few are better known or more highly appreciated than the common Myrtle itself (*Myrtus communis*). Many are equally well known, such, for instance, as the Eucalyptus and that whose name stands at the head of this article, but in these cases the plants are, unfortunately for us whose lot is cast in these climes, and who cannot therefore grow our tropical plants out-of-doors, trees of goodly stature. The beautiful evergreen tree which bears the Cloves of commerce grows to a height of 30 ft. or 40 ft., and has been likened to a gigantic Myrtle. The small flowers clustered together in branching cymes springing from the axils of the leaves are of a pinkish or reddish tint. The leaves are thick, dotted with minute oil glands, dark green and shining on the upper surface, paler beneath. The Clove Tree is said to be indigenous to the five small islands which constitute the Moluccas proper, and which have been called the Clove islands, namely, Tarnati, Tidori, Morter, Makigan, and Bachian. In these islands the Clove is now no longer to be found, having been purposely destroyed by the Dutch (who at one time held the monopoly of the Clove supply) for the purpose of preventing the spread of the plant. Rumphius says the Clove was introduced into Amboyna before the arrival of the Portuguese, and it is still cultivated there as well as in Sumatra and Penang. It is also found in other parts of the Eastern Archipelago, Madagascar, Mauritius, in some of the West Indian Islands, and Zanzibar.

The tree which is grown for the production of Cloves is said to be a cultivated variety of lower stature and more aromatic than the wild form.

The Cloves of commerce are the flower-buds of this tree, which when young are nearly white, becoming afterwards green, and finally red, at which stage they must be gathered, for if left beyond this period the buds would open and they would then be worth-

less for commercial purposes. In the Moluccas the Clove harvests take place in June and December, two crops being gathered in one year. They are either gathered by hand by being picked separately, or the tree is beaten with long Bamboos, cloths being spread on the ground beneath to receive the Cloves as they fall. In Zanzibar they are all gathered by hand, stages being erected beneath the trees to the height required to enable the branches to be reached. After gathering the buds are simply dried in the sun, when they change to the dark brown colour so familiar to us all. The average annual yield of a good Clove tree is about $4\frac{1}{2}$ lb.; some trees, however, produce double that quantity. Under the name of Mother Cloves the dried fruits of the Clove tree are sometimes seen in commerce; they are dark brown, of a shrivelled, oval shape, about $\frac{3}{4}$ in. long. They contain much less of the aromatic oil than the Clove bud, and



New Dracena Mrs. C. J. Freaque.

therefore are comparatively of little value.—JOHN R. JACKSON.
Kew.

NEW DRACENA MRS. C. J. FREAQUE.

IN none of our English nurseries has the *Dracena* been improved so much as in that at Anerley, one of the establishments of the General Horticultural Company. For several years Mr. Bause, the manager of the nursery in question, and a well-known hybridist, has had some

novelties to add to the list, and it is not too much to say that almost every *Dracæna* of hybrid origin has emanated from him. In the company's new plant catalogue there are many kinds enumerated, of one of which the annexed is an illustration. It is described as being the result of a cross between *D. concinna* and *D. Regina*, and is said to be of free growth, but of medium size. The leaves are of a dark bottle-green, lanceolate-acuminate, somewhat keeled, and recurved, the older ones edged with a narrow line of bright rosy-purple, the younger ones having a similar line of bright rosy-purple, within which runs a somewhat broader line of creamy white, the coloration of the edge thus forming a narrow belt of white, with the extreme margin magenta. The leaves are very elegantly drooping, supported on longish stalks, which have a pink margin. W. G.

CAMELLIAS AS WALL PLANTS.

It is a question if we sufficiently realise the true worth of the *Camellia* for covering walls in winter gardens, conservatories, and greenhouses generally. There is no flowering plant that can boast of such a combination of high qualities as the *Camellia*, forming, as it does when in the full enjoyment of suitable conditions, foliage of the most dense and lustrous description, and flowers unsurpassed for beauty of form and colour. So long as gardening is practised in this country, so long will the *Camellia* hold a prominent place in the esteem of all plant lovers; and yet, in spite of all the love and admiration which has been for many years lavished upon this noble plant, it is a fact that it can scarcely be classed amongst really popular subjects—that is to say, it is, as a rule, reserved to experienced gardeners to cultivate it; and a plant which is not universally grown by the owners or occupiers of small gardens can hardly be termed popular. That the *Camellia* is by no means a difficult plant to grow, those conversant with its peculiarities well know; and yet amongst small growers it bears the reputation of not being amenable to ordinary treatment. That this is a mistaken idea it would be an easy matter to prove, but into the

Pot Culture of the *Camellia* I do not propose to enter. I may, however, remark that coddling and too heavy a compost are the stumbling-blocks which the amateur generally manages to encounter. A more natural mode of treatment, recognising the fact that the *Camellia* is really a hardy shrub, would work wonders, and would often be all that is required to ensure the right treatment being given. It may be safely asserted that wherever a greenhouse exists the *Camellia* may be grown to perfection, and that without unduly taxing the skill and resources of the grower. Far better would it be if the unsightly stages, which so often form a feature in cool plant houses, were done away with, and the whole of the back wall covered with *Camellias*, which would, if properly treated, form a dense green curtain at all times beautiful, and which, from autumn until late in spring, would furnish an abundance of lovely flowers. Can there be anything more beautiful than a *Camellia* in full and lusty vigour—fresh, free, and bright in the way of foliage, the pearly white and bright pink flowers peeping out here and there in admirable contrast to the deep hue of the leaves? Nothing in the way of a floral display can be more beautiful than this, and it may be truthfully said that no pains would be too great to secure it.

Wall Culture.—There is no plant better adapted for covering a wall under glass than the *Camellia*, simply because it is one of the fairest of evergreens, and may easily be kept well and thickly clothed with verdure quite to the soil. Unlike the generality of those climbing subjects employed to cover walls, it does not exhibit such an almost unconquerable tendency to run away and expend its vigour upon the terminal shoots, to the complete impoverishment of the lower portion of the plant, thus denuding the base of the wall of foliage. On the contrary, by carefully training in the early stages of growth, every part of the wall will be covered with a thick screen of foliage, fresh and delightful to the eye. The great point is to secure good young plants in 6-in. pots, seeing that they carry a head of foliage quite in proportion to the size of the pot, as in that case it may reasonably be supposed that they will be furnished with good roots. Such young plants are, as a rule, much better than older specimens for our purpose, as these latter are frequently somewhat devoid of young twiggy growth and leaves just where such is most required, and unless a good foundation is laid by thoroughly furnishing the base of the wall with free-growing wood, the result will really not be all that could be wished for. And now with respect to—

Soil, about which many and diverse opinions exist, for loam, peat, leaf-mould, and mixtures in various proportions have been recommended by growers who should know something of the requirements of the *Camellia*. Let me, however, inform the inexperienced in this matter that very fine plants have been grown in pure loam, and equally good ones have been obtained when peat alone formed the rooting medium; at the same time, I should warn the would-be *Camellia* grower that a loam fit for this plant to grow in in a pure, unmixed state is not easily procurable, and I have witnessed such disastrous effects arise from the use of loam of bad quality that I would urge the inexperienced to exercise great caution in this matter, the best and safest way being not to use it in an unmixed state. We will, therefore, take for our border good fibrous peat and loam in equal proportions, and, in order to insure its remaining for all time in a free, sweet, open state, we will add thereto a goodly portion of coarse silver sand, throwing in as an additional precaution against stagnation a good sprinkling of charcoal in pieces about the size of a Walnut. Here we have a compost at once light and nourishing, and which may be counted on to remain for a long period in a free, sweet condition. The size of the border will, of course, have to be regulated by the amount of space at the disposal of the grower, as well as the extent of wall to be covered. For a lofty structure the border cannot well be too wide, but for a small or medium-sized greenhouse anything like from 2 ft. to 3 ft. in width and 2 ft. in depth will suffice. The ordinary means for ensuring perfect drainage must be taken, which, for the benefit of those not well conversant with this kind of work, I may state to consist of placing some 4 in. of brick rubble at the bottom of the border, and covering the same with whole turves, thus hindering the finer particles of soil from entering into and choking the drainage. The plants may be set out in March, taking care that the balls of soil are in a moist condition, and ramming the compost well around them. It is perhaps as well to allow an unrestricted development the first year of growth, commencing the training process the following autumn. J. CORNHILL.

Bifleet, Surrey.

LINUM TRIGYNUM, OR YELLOW FLAX.

AMONG winter-blooming plants this stands out as one of the most beautiful, and of the highest value for decorative purposes, especially as there are so few good yellows at this season of the year. I have grown this Flax for these last seven or eight years in quantity, always growing it in the stove the whole of the year till this season, when I determined to try cooler treatment, which I have done, and that with marked success. We have some plants of it now covered with flowers, and these have not been in a stove since they were cuttings. Since August 1 they have not been in a temperature exceeding 45° at night by means of fire heat, and when the nights have been frosty the house in the morning has stood at 38° on several occasions. Many say they would like to have this showy Flax, but find it difficult to grow and keep clean. No plant is, however, easier to manage, and none, when properly treated, gives greater satisfaction, for what can yield more pleasure during a day in December than to look into a house and see this bright yellow Flax mixed with such plants as zonal *Pelargoniums*, blue *Browallias*, the red and white *Bouvardias*, and a host of other things which I could name, all of which associate well with it.

The Mode of Cultivation pursued here is as follows: In spring, as soon as cuttings can be obtained, they are struck five or six in a 5-in. pot in a Cucumber box set on a manure bed. As soon as rooted they are potted into 3-in. pots singly, returning them to the same place, but not plunging them this time. When established, their tops are pinched off. When large enough, they are potted into 5-in. pots, returning them once more to the place from which they came. After a time they are transferred to a cold pit along with other plants that need the same management, keeping them close for a few days, and stopping them again. When the pots are full, the largest of them are potted into 6-in. and 8½-in. pots, returning them to the same place. The small ones remain in the 5-in. pots. This is the last potting, and here they remain till the end of August, when they are placed on an exposed shelf of a cold Peach house, the house being kept open night and day till the nights begin to get cold, when they are taken into the greenhouse, the lights of which are shut at night; as the days shorten they are removed to the warmest end and set on a shelf close to the glass. Here they remain till they begin to open their blooms. The main cultural points consist in keeping them close to the glass the whole of the time, never giv-

ing them the least shade in any way, and the cleaner the glass the better; getting the wood well ripened in autumn; giving them a thorough washing during the growing season with a syringe twice a day; and shutting them up hot when in pits during the early stages of growth. They should also be fed with manure water when the pots are full of roots, as they grow so rapidly they soon exhaust the soil; and as the days get cooler and they are ripening their wood give them less water, but they should never be allowed to flag.

The Soil we find them do best in is loam one part, and leaf-mould and manure one part, with a sprinkling of rough sand to keep it open. We never keep old plants, as we find we get much the best results from young ones from 1 ft. to 18 in. through, and as much high. Treated as just described, we are never troubled with red spider, which is their greatest enemy. I ought to add that after they have done blooming they do not start to grow as freely as some plants, but if they are kept somewhat drier at the root they will begin to move in spring, especially if they are put into a Cucumber frame in February in order to give them a start, so as to get cuttings as soon as possible, a long season of growth being most desirable. If struck later in the season, they should be grown in smaller pots and only stopped once, or if very late potted three or four round the sides of the pots and not stopped at all, as ripened they must be to bloom in a satisfactory way. I need scarcely say the cuttings strike most freely. It will thus be seen that every one who has a house which can be kept somewhere about 45° on cold nights, and a Cucumber or warm frame in spring, may grow this lovely plant, and I would say to all lovers of winter flowers, give it a trial.

Farnboro'.

J. CROOK.

SOUTH AFRICAN PLANTS.

Blue Flowers.

Agapanthus (Blue African Lily).—This now common plant to be fully appreciated should be seen in masses. On the rugged foreground of a South African mountain may often be noticed a conspicuous blue patch gleaming in the bright sunshine, apparently a mile or two of distance intervening. The zigzag of approach is long and wearisome, with thorny bush and unexpected precipice; frequent halts and careful climbing render it a long and slow journey to that wild parterre; but patience and strong legs attain the goal, and we stand in mute admiration of that wild Blue Lily, a wilderness of bloom. It would be easy to imitate this floriferous display in a normal British summer, for the plant is almost hardy. I have seen snowstorms, terrific hail, and rainfall of days' duration in its favourite habitat. The soil is superficially decayed vegetation on a substratum of shattered rocks, humid with springs, hence the tangled network of roots is well nourished, yet well drained. A few Boxes brought forward in a cool house could be easily buried on some verdant slope, facing south, and collectively supply that dazzling beauty of the *Agapanthus* in its own native profusion.

Anchusa capensis.—This very pretty weed, which covers acres of damp rich soils, particularly ploughed land in cultivated tracts, may be called an erect Forget-me-not. It is quite a floral gem, and is easily raised from seeds now procurable from any leading nurseryman.

Aster tenellus and others.—These are all gay, free flowering plants, plentifully sprinkling the rich Grass lands at a considerable elevation, in all the variations of sunshine and storm.

Nymphæa cœrulea and scutifolia.—No description with pen and ink can suffice to portray these gorgeous aquatics. In semi-stagnant rivers near the coast, notably in the Zwartkops, a few miles from Algoa Bay, the blue Nymphs of the Water are found in all their glory, a legion of azure and gold beauties, reposing on emerald couches, the clear, quiet pool, fringed by a dense wilderness of the ivory spathed *Richardia* (*Calla æthiopica*), and a tall brown Watercress. As may be supposed, the annual deposit of decomposed vegetation and gravel commingled is immense, for it is a land of sudden and frequent floods. The roots of these *Nymphæas* travel well. I took a *Wardian* case of them once to Calcutta, and after a seven weeks' voyage they were quite sound, but soon perished after being transferred to a pond in that tropical climate. It is quite possible they may be grown in one of our southern counties with proper treatment.

Babiana and Moræa.—These charming little bulbous plants contain many blue specimens and tints springing from that colour. The first named I found very common among rank vegetation both in valleys and on mountain slopes, stony ground its habitat. Both are good border plants in a southern county, only requiring dry treatment when the bloom is over.

Streptocarpus Rexi and others.—I was never weary of looking at these pretty and curious inhabitants of the wildest glens and most unfrequented torrents. The *Primula*-like clumps strew the great sandstone slabs on the shady margins of bubbling water,

or peep from under the Grass tufts on the edge of a forest. I have never cultivated this gem of the woods, but should say, judging by the low temperature and stormy weather of its habitat, that it deserves the attention of British horticulturists. Good drainage with plenty of damp while in growth would be the natural treatment.

Wahlenbergia capensis and others.—These are pretty trailing annual *Campanulas*, spreading themselves in great profusion over the rank Grasses about the edges of rivulets and mountain springs. It is very moisture-loving and grows only in such humid localities. It should succeed in cultivation with reasonable care.

W. H. L.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

The Chatsworth Hanging Baskets, &c.—Those 3 ft. wide in the large winter garden at Chatsworth were the finest I ever saw. They were filled with *Epiphyllums*, *Elk's-horn*, and *Maiden-hair Ferns*, and the brilliancy of the Cactus flowers was quite stained glass-like, as seen between the eye and the light. The big bushes of *Linum trigynum*, which grow there, are also worth remark, being 5 ft. or 6 ft. high, and well furnished in their season with golden flowers. There, also, the *Banana* grows as freely as in tropical gardens; so, also, does its relative, the *Traveller Tree* of Madagascar, and the group of *American Agaves* in one corner of the structure quite near the path always struck me as being the most natural-looking and effective clump of *Agaves* I ever saw. The enormous *Monstera* on the rockwork is also a fine feature, being very robust, while its long aerial roots ramble down the stones in quest of moisture in a most natural and effective way.—F. W. B.

Gilbert's Double Chinese Primulas.—We have received the following further correspondence in reference to these from Mr. Mansell, of Guernsey. He says: "I send you by this packet for England a small box containing blooms of the different Double *Primulas* you sent me. Strange to say that within the last day or two the 'White Lady' shows a slight disposition to colour. It is not much, as you will see; nevertheless, we cannot call it a pure white, which I really did consider it to be at the time I wrote to you on the subject. My gardener thinks it might retain its white colour if it were grown in a larger pot, but that is uncertain." This convinces us that *Primulas* are sportive, and we think we shall not do wrong to convert the five varieties into two, a red and a white or striped. At the same time we shall endeavour, by carefully selecting, to establish a pure white "White Lady."—OSBORN & SONS, Fulham.

Spiræa Thunbergi.—One of the easiest of all shrubs to force into flower, and at the same time a charming little plant, is this *Spiræa*, the small Hawthorn-like blossoms of which are freely produced, and the plant succeeds well under very ordinary treatment. It may be planted out of doors during the summer to make its growth, and potted up in the autumn—treated, in fact, as *Deutzias* or similar plants usually are, and when required in flower all that is necessary is to introduce it into the forcing house for a few days when the flowers open rapidly.—ALPHA.

Paullinia thalictrifolia.—What soil and treatment does this plant require? I have one which grows but little in summer, and then looks very bad during the winter. My gardener has tried to induce it to do better, but without success.—S. C. O.

[In the current volume of *THE GARDEN* (p. 312) you will find a few remarks on the propagation and culture of the *Paullinia* which may prove helpful to you. As there stated, it requires a tropical stove temperature, with plenty of moisture and shade from bright sunshine in summer. In winter less water should be given, and the plant should be allowed to rest. About the middle of February repot in a peaty soil, with plenty of sand and good drainage. Care should be taken not to over-pot, as this species requires much less root room than most of the *Paullinias*. I should advise you not to disturb your plants at present, but to keep them rather dry until the potting season, when they may be treated as just described.—Z. B.]

Abutilon insigne in Pots or Planted out.—In *THE GARDEN* of December 11 (p. 586) there is a paragraph relating to this *Abutilon* as follows: "A fact worthy of note is that this plant, which occupies several square yards, is potted in a 6-in. pot." On the same subject in *THE GARDEN* of December 18 (p. 624) it is stated: "It is useless, I fear, to attempt the cultivation of this plant in a pot." Now, which are we to follow? Can any other grower of this plant give further testimony on either side relative to the best way of growing it?—E. J. E. [The fine plant at Chiswick was certainly in a 6-in. pot, but now that the plant has grown so large it is probable that the roots have escaped through the hole of the pot, and found sustenance elsewhere. We should advise, as does Mr. Gumbleton, that it be planted out in a moderately large border of good soil, well drained, and in a good position as regards light and air.—W. G.]

Book on Indoor Gardening.—Can you inform me which is the most practical work to get for information on indoor gardening? I have several houses. I want a work which will give definitions of the terms used, descriptions

of most plants usually found in greenhouses, conservatories, and stove houses, together with their habit and culture, hybridising, &c.—E. J. C. [*Indoor gardening now comprises so many branches that any one book hitherto published will not help you very much. Mr. Williams' is the best book on stove and greenhouse plants, but you will also want a book on Orchids and soft-wooded plants. Williams on Orchids will help you.*]

THE CAPER PLANT.

(*CAPPARIS SPINOSA*.)

ACCORDING to some this is the Hyssop of Scripture, and is described as such, I believe, by Canon Tristram in his "Natural History of the Bible." Its date of introduction carries us back nearly 300 years, and it should be better known than it is on account of the beauty and interest which it possesses. Never do I remember having seen so fine an example of it as was growing in the Jardin des Plantes a few years ago. There it was planted in the corner of a frame, that in summer it could have the advantage of full exposure to light, sun, and air, and in winter receive the benefit of glass protection. The flowers were white, and not unlike those of a St. John's Wort. It used to flower some years ago at Kew against the wall of the old



Caper Plant in Flower (*Capparis spinosa*).

economic house. Its culture may be carried on in a frame facing south, or it might be trained on a wall having the same aspect. In either case it should be slightly elevated, and have plenty of drainage by means of stones intermixed with the soil, and around its base no better soil can be given it than sandy loam. It is not difficult to increase, though always slow in growth at first. Seeds can rarely be obtained good, and as cuttings strike easily they offer the best means of propagation; long-growing shoots will not, however, strike; short ones are the best. They may be inserted in small pots in a mixture of loam and crocks, broken small, with sand at the top. The best position is a shelf near the glass in a warm greenhouse, a bell-glass being placed over the pots, but not close down so as to confine the moisture, the object in view being rather to prevent evaporation. It is a plant that will stand great aridity, but the cuttings must have some water to enable them to strike. It grows naturally on walls and similar positions in the south of Europe and the Mediterranean region. In Egypt it grows plentifully on ruins in sandy desert tracts, where it is often a very striking object. Even where no moisture can be detected this plant forms patches of the deepest green. Its habit is that of a Bramble. The pickle with which we are so well acquainted is imported chiefly from Sicily, where the young fruits, as well as the flower-buds, are sometimes made use of in this way. One curious point about the flower will

perhaps strike most observers. As shown by the accompanying illustration, the young fruit is elevated on a long stalk, so as to be nearly on a level with the purplish anthers. R. J. L.

A CYCLONE AND TROPICAL VEGETATION.

WHEN we went out at daybreak on the morning of the 19th of August last, and saw with dismay the awful effects of the cyclone of the previous night, and the apparently complete ruin and desolation wrought in every part of the garden, it seemed utterly impossible that the "howling wilderness," as it then appeared, could for very many years, if ever, again be said with truth to "blossom as the Rose." Hardly a single tree, shrub, or flower had escaped the fury of the terrific gale, and while a third of all was levelled with the ground, and many completely torn up by the roots, others had lost only branches or flowers, but nearly all looked thoroughly battered and weather-worn. By-and-by the *débris* was cleared away, the only partially uprooted trees raised and firmly staked, and very soon, aided by the refreshing showers that fell at regular intervals for more than a week after the storm, to our delighted surprise, nearly all of them began to revive and show signs of renewed growth. Strangely enough, the thorough "shaking up" of the plants, even to the very roots and fibres, appeared to have given them a fresh impetus as regards growth, and even some sickly, scraggy old trees, bare almost of verdure before the gale, seemed after it to have gained a new lease of life, and burst gaily into budding leaves in company with their younger and healthier neighbours. One particular instance of the remarkable change wrought in the case of a specimen of one of the Australian Gum trees is worth noting. Though growing at the outer edge of the arboretum, and fully exposed to the fury of the tempest, it was one of the very few trees that seemed to have suffered little; indeed, we could not see that it had lost even a leaf, and this renders all the more remarkable the little note we have to make concerning it. The tree is about 50 ft. in height, and previous to the "weather" (as the natives invariably speak of the period of the hurricane), only about 15 ft. at the top were covered with short, though sturdy branches, the lower 35 ft. of the rather slender trunk being quite smooth and bare. Shortly after the period in question—say in about three or four weeks—we noticed that tiny shoots were beginning to push themselves into notice all over the formerly bare stem, and now it is wholly covered with slender twigs from 1 ft. to 2 ft. long. Can any of your readers inform us if anything like this has been noticed before under similar circumstances? and if so, how they account for the singularity? Of course we could have understood the matter if the tree had been stripped of its branches by the remorseless wind, or even if it had been denuded of its leaves to any extent; then we would have guessed that Nature was only asserting herself by providing new channels for the sap; but as it is, it seems singular and certainly unusual.

Another instance of the strengthening and beautifying process due to the action of the gale occurred in the case of a plant of *Erythrina Crista-galli*. An ugly, scrubby, almost lifeless-looking shrub it was, with twigs almost leafless, and flowers few and far between, the whole due to the poverty and paucity of the soil that covered (or did not cover) its roots. Since the storm, and without other aid, it has rapidly developed into a healthy, handsome, bushy plant, and at present each of its numerous shoots is terminated by a long bright maroon flower-spike. Many more such cases could be cited if space allowed, but I must be permitted to mention the *Amherstias*, which are at the present time attired in completely new robes of long, limp bunches of pale purplish-brown leaves, and I hope these will by-and-by lead to the glorious drooping panicle spikes of blossom which so delighted all onlookers in the past summer. The pale violet of the young foliage of *Jonesia Asoca* and that of *Meaua ferrea*, varying from the palest straw colour to the brightest rosy-crimson, are conspicuous in all parts of the garden, and I am doubtful if any "autumn tints" that were ever seen in our woods and gardens at home can rival the colouring of the just sprouted clusters of foliage of either of these. Many of the Palms, whose lives were despaired of, have agreeably disappointed us by sending out fresh leaves, and the tall Tree Ferns have before now replaced the broken and battered remnants of their storm-beaten fronds by others more luxuriant and lovely than their predecessors. Flowers and shrubs that we had not seen in blossom before are now blooming profusely, and *Ixoras*

and delicately scented Tea Roses are one mass of colour. Most of the varieties of *Ixora* do well here, the newer ones, such as *Fraseri*, *Duffi*, *Prince of Orange*, &c., blooming abundantly, but they are all much inferior, in our estimation, as well as in that of visitors, who in general pass them with a careless look, to the comparatively well-known *I. acuminata*, which has been showing great scarlet trusses of starry blossoms ever since we came here, a year ago, or to the equally fine paler variety, *I. coccinea*, which also blossoms freely and continuously. *I. longiflora* is a favourite, too, because of the sweet, yet powerful odour with which in the evening it fills the air to the exclusion of all other scents. Another favourite of ours is *Plumbago capensis*; its trusses of the most delicate lavender colour are, we think, almost incomparable, and it, too, has bloomed without intermission for a year. The flowers of this shrub are very delicate in texture as well as in colour, and after every shower look drooping and broken, but in a little while they again begin to raise their heads bravely, and in an hour or two look fresh and lovely as ever. I am afraid this favourite of ours is rather neglected now-a-days in England, one so seldom sees it in greenhouses there; and I am certain it is far more worthy of cultivation, so far as effect is concerned, than many newer, and therefore more highly prized plants. I must not forget to note the fact that it is not only in the matter of profusion of bloom that we find a great advance on the earlier months of the year, for we are constantly remarking that the colours of the blossoms are enhanced and brightened very considerably. A large and wide-spreading plant of *Bougainvillea glabra*, the flowers of which were characterised last January and February as "colourless, washed-out-looking things," has its long sprays now densely crowded, and drooping to the ground with their weight of almost radiant blossoms, and is certainly the most conspicuous and attractive flowering shrub in the garden. Near it is a plant of the double-flowered *Hibiscus* (*H. Lamberti*), whose large Hollyhock-looking flowers seem actually glowing with colour among the luxuriant foliage.

Fruit trees of all kinds are showing blossom for the second time this season. Our Orange trees that had all their fruit dashed to the ground and utterly wasted, to our great disappointment, just when they were beginning to colour nicely, have again blossomed and set another, though a much lighter crop. Mangoes, too, are blooming, but they are not setting fruit, chiefly, I suppose, because in the case of many varieties the crop was perfectly ripened, and, indeed, almost all gathered prior to the hurricane. Great clumps of the ever-present Bamboo are waving their new, but already long and graceful shoots, on all the mountain slopes around, though there seemed to be no plant that suffered so much by the storm. Everywhere were to be seen huge masses of these long, pliant shoots, twisted, matted, torn, and wrenched, like child's toys in the hands of a giant; now these are covered and hid by new and luxuriant shoots. But this is only one and the brightest view of the matter. I have said nothing of the poverty and, in many cases, utter destitution caused by the same tempest that has strengthened our weakly plants and brightened our flower borders. The destruction of houses and "ground provisions" has been very great, and the consequent suffering to the peasantry would be difficult to measure. Bread-fruit and Cocoa-nuts in enormous quantities, and at this season their chief support, were blown down in an unripe state, and Yams and Coco, the latter *Caladium esculentum* of English conservatories, were so much damaged, that their growth and ripening will be retarded for a considerable time.

Castleton Bot. Gardens, Jamaica.

M. SYME.

NOTICE.

Complete Index to "The Garden."—We have thought for some time of the production of an index to THE GARDEN to the close of the year 1880. Having now made some calculation of the cost of production, we find it will be expensive; the setting of the type alone would amount to over £100. We therefore only propose to incur the expense and trouble of the work in case at least two hundred and fifty subscribers put down their names for it at half a guinea per copy. In case we should produce it, it will not be sold to the trade at any lower price than this, and there will be no presentation copies. Any reader, then, who desires to possess on these conditions a general index to the whole series of volumes published down to the end of the present year, including all illustrations, will please write to the publisher to that effect. If produced, the index would be in a form to range with THE GARDEN as regards size,

THE KITCHEN GARDEN.

BLANCHED ASPARAGUS.

PERHAPS "Justicia" will permit me to say that I have eaten blanched Asparagus as good as green; but that was not in Paris. The Asparagus of which I was writing coming fresh from Argenteuil to the Halles Centrale, and, full of enthusiasm of the French mode of culture, I tried the Asparagus, and was disappointed; the top was good, the lower portion tough as leather. It must be the fault of the cook. Tried again and again with similar results. French cooks explained only the top to be eaten; consulted English residents, and found their testimony similar. Most of them also preferred the flavour of English Asparagus. No doubt "Justicia's" experience was different and as he affirms. Will he kindly tell us how to cook the French Asparagus, so as to have the white part tender and sweet and the coloured morsel on the top not boiled off or to a flavourless pulp? No doubt the plan of earthing up the Asparagus in the spring is a most useful protection against early spring frost. During the time the sweet morsel is boring its way through it is safe, but the moment it breaks ground, is not the tip all the more tender the further it has to bore through to the light? "Justicia" will doubtless say, What matter! Cut it at this point, and you have 6 in., 9 in., or 1 ft. of edible Grass, white as ivory and sweet as the best flavoured green Grass. Well, no; not blanched then.

I have no prejudice against blanched Grass. On the contrary, I forced Asparagus under wooden shutters for years for a gentleman who contended that the finest Asparagus should be white as ivory; but I found a great difference in the Grass grown under ground and above it. The former was hard and woody; the latter, grown in the dark, was white as ivory, brittle as glass, and sweet as a Nut. This will show "Justicia" that the matter is not quite so simple as it seems, and also that I have taken pains to ascertain the truth in this matter. I consider the French system perfect up to the point of the shortness of the edibility of the Grass from the tip downwards under ordinary cooking. I was a fortnight in Paris in the Asparagus season, and can therefore write with some authority on this point; I also discussed it with one of the vice-presidents of the Horticultural Society of France and others. I may also add that a large proportion of the largest Asparagus grown in England has the same wasteful fault of being uneatable through two-thirds or three-fourths of its length. By allowing the Grass to run up 6 in. or so above the ground, so much of it becomes of almost equal quality to the sweet tip that protrudes itself above ground. I admit that were this 6 in. grown in the dark, but still in the air, the flavour would be almost equally good; but as this cannot be done, where is the objection to the allowing of this profitable extension of our Grass in the light?

D. T. FISH.

[This question is really not an open one at all. Let those who know the subject as our correspondent does enjoy their taste by all means. But when we are told of hard sticks with an inch of green at the top, &c., then one's patience fails in presence of the facts which are easily accessible to any one who takes the trouble to look for them. Throughout the whole of Continental Europe this vegetable in its best state is blanched, but perfectly edible to as great a length as any one cares to go. In cooking the tips are left 1 in. out of the water while the thicker stem is softened. The perfect cookery of this vegetable is common everywhere abroad, and if good of its kind the flavour is excellent. Go into the best house in Covent Garden and ask a good judge for the best flavoured Asparagus that can be bought, and he will furnish you with what is blanched to save a purplish tip. The man would choose the same for his own table. Such stuff as is now grown in the majority of our gardens, if sent by chance to any market, is sold with difficulty, and if sold at all is cut up for soup or the like. Imagine, then, the courage of any one so situated recommending people who have passed all their lives in growing Asparagus, who grow it superbly, and who supply our markets as well as their own, how to improve their ways. No doubt there is improvement possible always, but this is a case of the Crab calling on the Irish Peach Apple to reform its flavour! It would take pages to refute the fallacies that have been written on this matter, but this much may be said here that the French would not supply the markets of Europe with the best "Grass" if they did not blanch. More green "Grass" comes from France than England to the London market, but it always falls into the second quality as compared with the blanched Asparagus from Argenteuil. There is not a flavour or a phase of the whole matter which has not been thoroughly studied by these people in all ways, and they have as good reason to blanch their Asparagus as they have to leave their Spinach green.—ED.]

GOOD CELERY.

Few vegetables are more generally liked than Celery, and there are few, if any, that cause greater disappointment and inconvenience to gardeners, when, through any cause, failure in the crop occurs. The injurious effects of the grub which attacks the leaves of this plant have been known, most likely, from the time it was first cultivated, but in some parts of the kingdom it seems more prevalent than in others. In some localities it is no uncommon thing to see a few leaves affected, but not to an extent calculated to weaken the crop seriously. The only method so far known for its destruction appears to be crushing by hand; in fact, it seems difficult to devise any more expeditious means of getting at the larvæ, secure as they are between the upper and under cuticles of the leaf. During the last two summers its ravages in many places have been such as to defy all that could be done to cope with the pest, which has appeared in such numbers as to entirely destroy the leaves, leaving nothing alive except the bare stalks, causing, it is needless to say, complete destruction of the vegetable for ordinary use, as the plants, with their leaves so far lost before growth is near completed, cannot make further progress, and often rot away. This summer's Celery has in some places been affected with a disease in the leaves, which at a short distance gave them the appearance of being infested with the grub, three-fourths of the entire surface being covered with brown spots or blotches from the size of a Radish seed up to that of a Pea, often so close as to run into each other, and no insect, or sign of an insect, being, or having been, present. On examination of some I saw, the entire substance of the leaves under the affected surface was dead. One crop was a large one, occupying over an acre, in a private garden. One or two varieties seemed to have so far resisted the disease as to have been little touched. The leaves presented all the appearance of having been destroyed by parasitic fungus. I have heard of several other instances of Celery being thus diseased.

Failures in the Cultivation of Celery are either owing to its being hollow, or to a disposition to run prematurely to seed in autumn. With all that has been done or said to be done in the improvement of our various kitchen vegetables it seems strange that there should be any Celery remaining in cultivation that would grow hollow; for although it is sometimes held that the hollow condition is the result of indifferent cultivation, yet this is so far incorrect that nothing which the grower can do will make Celery that is inclined to grow hollow solid, or reverse the position by causing a good solid variety to become hollow. The influence of good or indifferent treatment in the cultivation of this, as other vegetables, is always apparent, but not to the extent of altering its solidity, or the want of this essential. The not unusual failure by starting to seed—or bolting, as ordinarily designated—is often the result of a check in the growth, or still more frequently caused by sowing a variety too early that is naturally inclined to run. This disposition is generally more apparent in the white varieties than in the red or pink sorts. The white kinds come in for use quicker than the red; it consequently follows that those who require Celery very early in the season grow some one of the numerous white varieties. Beyond this, the red or pink sorts are much the most to be depended upon. In no part of the kingdom is Celery so much used by the people collectively as in the neighbourhood of Manchester and the surrounding district. This has long been so; the result of which is that it would be difficult to meet with a cottager's garden or plot where Celery did not hold a first place.

Raising New Kinds.—When the late Mr. Wilcock was gardener to Lord Stamford at Dunham Hall, some ten miles out of Manchester, he raised his famous Dunham Red, a variety that has always held its own wherever it has been cultivated, but not always held its name, for it was rechristened at least once in the neighbourhood of Manchester, and offered under the name of Turn Moss Red; when it got into the midland counties it was called Leicester Red; further south, Matchless Red; and how many other Improved and Matchless rechristenings it has had would be difficult to say. Any one who requires a thoroughly solid, good-flavoured, hardy Celery, that with anything like fair usage will do sown the end of February, and not show the least inclination to run before the twelvemonth's end, will find, if they have this variety true, that it will never disappoint them. More than twenty years ago I raised a variety very similar to the Dunham Red, only lighter coloured, being more correctly described as pink than red, as when blanched it only shows a very little colour. For many years I never grew any other kind, and during the latter portion of the time I found that it was so hardy and little inclined to run, that the crop required to keep up to the end of March answered just as well from seed sown in February, that is, thirteen months before, as if sown later in the spring, as usually practised for the latest crop. In this respect the Dunham Red is similar, the difference being that the pink variety is more

easily blanched, consequently can be had a little earlier. As an evidence of how true a good variety of Celery keeps to its character, I may mention that during the whole of the years I grew it I never found a plant which showed any signs of coming hollow. I gave it to many gardeners through the kingdom, and to some in America and Australia, where I hear it is equally constant. Those who are troubled with their Celery being hollow may depend upon it that their disappointment is in consequence of growing an indifferent kind; and when once a good variety is obtained, there is nothing in the whole round of vegetables that it is more easy to save seed from true, either by keeping a few plants at the end of a row, or by planting some for the purpose on the flat. The seed will keep seven or eight years, or even more, although all will not vegetate if kept beyond this time. The pink sort above named was one that did not suffer from the disease referred to.

T. BAINES.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Veitch's Self-protecting Broccoli.—This is an acquisition to our list of winter vegetables, coming in as it does when most needed, viz., between the latest Cauliflower, such as Autumn Giant and similar sorts, and the early spring Broccoli. We have a quantity now turning in ready for use that were planted between rows of early Peas, Potatoes, &c. For Peas and early Potatoes we manure and dig the land up roughly as early in winter as possible, and sow our Peas at extra wide distances apart, and as soon as the Broccoli plants are ready they are planted one row on each side of a row of Peas, so that dwarf Peas planted in rows 7 ft. asunder leaves the Broccoli 3½ ft. row from row. The early kinds are all cleared off about a month after planting the Broccoli, when the soil is deeply stirred with a prong hoe, and kept clean by surface stirring, and I find plants so treated better than those on very loose soil. We have still plenty of Autumn Giant Cauliflower, but the Self-protecting Broccoli is much more protecting, as the heads are enveloped in plenty of foliage, which, if broken down over the heads, keeps them safe from ordinary frosts, but at this time we generally lift the plants before the heads get fully grown, and replant in frames until required for use.—JAMES GROOM, *Linton*.

Lifting Potatoes Before they are Ripe.—For the past three years I have lifted our Potatoes before they were ripe, and before they were attacked by disease, with very good results; as regards crop, and I have always kept them stored in heaps, seed and eating Potatoes together, until the weather permitted the men to sort them. Then the sizes for seed have been spread on shelves until planting time, generally in the fruit room, and I have had no cause to regret doing so, for I have had excellent crops of good quality; but through pressure of work this past summer about a ton of Myatt's Ashleaf were left until about the third week in July, when the disease made its appearance on the haulm. We scarcely, however, found a bad tuber; still, I had them stored by themselves, and in looking them over in about three weeks afterwards more than two-thirds were bad.—HY. FARR, *Ashfold*.

Tall v. Dwarf Celery.—After trying most of the varieties of Celery in cultivation, I find scarcely any equal in all respects to the Dwarf Incomparable White, for although the tall-growing long-leaved kinds look more imposing when bundled or bunched for market, yet on comparing the blanched or edible part there is not much difference; consequently, as more plants of the dwarf than the tall can be grown on equal sized plots of ground, it follows that dwarf sorts are best suited for gardens where space is an object. I lately had an excellent sample of Red Celery brought me that had been grown from seed saved from the same stock for nearly forty years, and a better Celery it would be impossible to find. With the Dwarf Incomparable for early crops, and a solid red kind for late crops, I would be content to leave all the very long-leaved varieties to growers for exhibition.—J. G.

First Early Peas.—I think as a rule we attach too much importance to first early Peas, for try what we will, or how we will, the earliest gathering is not advanced very much before that of main crops; therefore sorts that have only their earliness to recommend them should be planted in limited quantities, for there are such excellent kinds amongst the second earlies or main crop Peas, that even large gardens have not space for sorts that produce so little in proportion to the labour which they entail.—J. G., *Linton*.

Early Purple-top Munich Turnip.—My experience does not agree with that of those who have found this to be a bad Turnip; with us it was in all respects everything that could be desired, but of all vegetables none varies in quality more than Turnips. Of some varieties we have had two patches growing in the garden at the same time, and when cooked they were so different in flavour as to give the impression that they were two different kinds.—CAMBRIAN.

GARDENING FOR THE WEEK.

Indoor Plants.

Conservatories.—Notwithstanding that the first half of January is the dull season in the year, the extensive choice of fine-foliated plants and the always popular Primulas, Tree Carnations, Roman Hyacinths, and many other plants, which depend more upon the past summer treatment than winter forcing, may always be had in perfection before the Chrysanthemums and Geraniums begin to wane, and in addition to these the warmer structures will yield batches of the finest and at one time the most abused plant in cultivation—the double Poinsettia—which comes in late, and keeps a long time in the temperature of a warm conservatory. The greatest enemy is damp, but cleanliness, combined with frequent rearrangement and the avoidance of crowding too many specimens together, will be found the best preventive, always assuming that this enjoyable structure is well ventilated and kept at a temperature of 50° to 56°. In many places—small ones in particular—the attempt to do too much is often forced upon the gardener, and as this invariably results in disappointment, the system cannot be too strongly condemned. One very important operation may now be performed with advantage, as the roof climbers will be at rest, and many of them in a fit state for pruning. I allude to the thorough cleansing of the house, and unrelenting war with insects. If paraffin is used it must be applied cautiously, and great care taken that it does not run down to the roots. Remove Chrysanthemums as the flowers fade; cut them down and place them in a cold pit for giving strong and early cuttings. Grow duplicates of a few good ones in preference to endless variety. Fumigate Callas before they are taken into the house, place them in saucers of water, and feed well. Give Bouvardias the warmer and Camellias the cooler end of the house. The latter do best when grown in a house by themselves, or with Lapagerias trailing under the roof. Keep the forcing pit regularly supplied with the usual subjects for giving a succession of flower, and remove others to intermediate quarters to harden before they are taken into the conservatory.

Hardy Fruit.—The closing quarter of the past year having been so dry and open, we may assume that all root pruning and re-arrangement of fruit trees has been completed, and that pruning and nailing is well advanced, but where this work is still in arrears lose no time in bringing the planting to a close. Secure standards and pyramids to good stakes and mulch with rotten manure, but do not prune until the buds begin to swell. Push on the pruning of bush fruits, and get the borders manured and pointed over when dry. In town gardens and wooded districts where small birds are troublesome the pruning of Gooseberries may be deferred until March, or they may be dusted with quicklime and soot after they are pruned. Owing to the mildness of the weather, Peaches on south aspects are getting forward, and being so liable to injury from spring frosts the shoots should be unnailed, pruned, and tied to stakes some distance away from the walls. Defer nailing in until the latest moment, and have some kind of protection in readiness for placing over them when the blossoms begin to open. For many years we have used glass copings for Peaches, and, with the exception of last season, we have not missed a full crop of fruit. Get Raspberries secured to stakes or wires; defer shortening back, at least in low situations, until danger of great severity is past. Mulch heavily with rotten manure, but on no account disturb the roots of these or Strawberries by digging amongst them. Select well-ripened shoots of Apples and Pears for grafts, lay them in on a shady border, and head back the stocks before the sap begins to rise.

Indoor Fruits.

Pines.—Having passed the shortest day, we may assume that preparations have been made for introducing a few of the most promising plants into strong heat, in order to induce them to come into fruit very early in the spring. Select from successions that have been rested plants which indicate signs of throwing up quickly, and plunge into a bed of tan or leaves where the heat at the bottoms of the pots will range from 90° to 95°. If the balls are dry, water them freely until properly moistened, and maintain a brisk top heat of 65° to 70° at night, with a rise of 5° to 10° by day for the present. Keep the atmosphere in a moist growing state, but guard against injury to the young fruit by the lodgment of water in the hearts. Examine successional stock and see that plants near the pipes do not suffer from want of water at the roots.

Vines.—The pruning of all late Vines immediately after the Grapes are cut is an important operation, as it gives them a good season of decided rest, particularly where they can be kept clear of plants and the ventilators are left open night and day. Strong-growing kinds, like Gros Colmar, Black Morocco, and Barbarossa, produce the finest bunches when trained and pruned upon the extension principle.

Lady Downes and Muscats also give large clusters, but they are not always so close and compact as they are when grown upon the spur. In course of time the spurs become long and unsightly, and when this is the case a few of the oldest rods should be removed annually to make room for others of one or two years' training. When pruning is deferred until January, all the wounds should be dressed with styptic to prevent bleeding, but Vines that are pruned in December do not require it. All loose soil and mulching should be removed from the inside borders preparatory to top-dressing with fresh turf and bones, and if painting is necessary advantage should be taken of this the only opportunity for getting it done. The painting of the interior of a modern Vinery does not take long, and the application of oil and turpentine is the most effectual remedy for the destruction of the remains of all insect pests. Vines started early under the genial influence of warm leaves placed on the inside borders, and now breaking vigorously, will be capable of standing and enjoying a slight increase of temperature on fine days, but no advance on 58° at night need be made until the bunches become prominent, when direct syringing may be reduced, and atmospheric moisture must be produced by damping all available parts of the house and by frequent turning of the fermenting material. Give a little air on fine days, but avoid cold currents, at all times prejudicial, and run up to 75° after closing.

Young Vines from this year's eyes intended for planting out or growing into fruiting canes may be cut back to a good bud near the base, dressed with styptic, and placed in a cold house ready for starting in January. Eyes may also be prepared and potted singly in small pots or squares of turf, and kept cool for three weeks before they are plunged in bottom-heat. Where young Vines have to be planted in external borders next spring, this fine, dry weather offers a favourable opportunity for mixing the compost and making up the borders. Ample drainage being the first and most important point, this part of the work should be carefully performed, the space left for the soil being regulated by the nature of the subsoil and position of the garden. In elevated situations, 3 ft. at the front of the house and 6 ft. in width will be ample to start with, but in low, damp places with unfavourable surroundings I should give preference to a border 2 ft. 6 in. in depth, resting upon extra and well aerated drainage. With good turfy loam for the staple no manure need be used, but 12 per cent. of bones and a like quantity of charred refuse may be used with advantage.

Figs started in November and now pushing their terminal buds will stand a little more heat when the weather is fine. Syringe twice a day, and damp the floors and paths at night. If the trees are placed on pedestals keep the fermenting material at 70° near the base of the pots, and the minimum top heat at 55° to 60°. Give air at 68° on fine mornings, and run up to 78° after closing for the day. If started now the second house containing trees established in internal borders will come into bearing about the end of May. Let the borders be well mulched and liberally watered with tepid water. Syringe freely, and commence forcing at 50° by night, 58° by day, and 5° more from sun heat.

Succession Houses.—Directions having been given for starting the second house, proceed with the pruning and preparation of the trees by thinning out the shoots that have reached the extremity of the trellis in the late house. Wash them with strong soap and water, and spare no pains in the removal of brown scale and mealy bug where these troublesome pests have gained a footing. The most popular insecticide is paraffin, a wine-glassful to a gallon of water, and a most effectual destroyer it is, but great care and judgment should be used where it is employed. For smooth-barked trees, like the Fig, it may be applied with advantage, but for Vines, which have soft, porous wood and flaky bark, it is highly dangerous. It is not, however, for use as a winter dressing that this oil is most applicable, as the quantity required to reach the larvæ of insects when snugly enshrouded in the secret recesses of the bark is liable to be absorbed by the stems. The mixture will be found more efficacious in the summer, when it should be applied to the foliage with the syringe, the whole being kept in constant motion to prevent the ingredients separating.

Peaches will require more air and less moisture when in flower. Impregnate with a camel's-hair pencil when the pollen becomes buoyant. Sustain the delicate organs of the blossoms by syringing the bare stems and other available spaces on fine days. Let the temperature range about 50° at night and 10° higher from 10 a.m. until 3 p.m., when ventilation may be reduced for the night. Where more than two houses are forced, the second should now be closed and syringed regularly. If fire heat is applied, let it be by day in preference to night, when the temperature should not exceed 45° until the buds begin to swell.

Cucumbers.—Winter-fruiting plants now passing through a critical time will require careful management to keep them in steady

growth. Divest them of all male blossoms. Train thinly, but do not stop the shoots until we have more light and warmth, and crop lightly. Top-dress the roots with warm turf, water freely when necessary, using tank liquid and guano water alternately. Keep the glass clean and cover up at night. Prepare materials for hotbeds, and make a sowing of Telegraph for succession.

Kitchen Garden.

Now the trees are clear of leaves, advantage having been taken of frosty mornings for wheeling out manure, there should be no delay in getting all vacant ground dug or trenched, in order to expose it to the influence of the elements. Steel forks answer best for breaking up the bottom and working in the manure or, better still, charred refuse where the subsoil is heavy and unfit to be brought to the surface. Repair the edgings of the walks, which should be of stone where plentiful in preference to Box, which entails much labour in keeping, harbours vermin, and prevents the use of salt for the destruction of weeds. Where the situation suits autumn-sown Peas, these will now require a ridge of soil drawn up on each side of the rows to protect them from wind, and small twigs of Beech stuck amongst them as a shelter from frost; but in low damp gardens the old-fashioned system of sowing on strips of turf placed in cold frames, Grass side downwards, is an excellent plan, as they can be removed to the drills without disturbance of the roots. Make sowings of early Peas and Mazagan Beans on warm borders for succession. Stir the soil amongst winter Lettuce, and lift the most forward for filling up vacancies in cold pits. Look over the remainder of Veitch's Protecting and Snow's Broccoli, and transfer them in good balls to cold pits, where they can be protected in severe weather. Trench over Horseradish beds and size the roots, the largest for use, and the straight, medium-sized pieces for replanting in deeply-dug ground.

Forcing Ground.—A good supply of Oak or Beech leaves and stable manure should now be ready for making up into beds for Carrots, Radishes, and Potatoes. Make the beds very firm, defer soiling until the heat is up, and sow or plant as soon as the soil becomes warm. Meantime, place the Potato sets in shallow boxes or baskets, cover with leaf-soil, and economise time by bringing them forward in a warm Vinery. A good supply of Seakale and Rhubarb roots should be lifted and kept in reserve, where they can be protected from frost until wanted for forcing in the Mushroom house; a few rows of the former may also be covered with spent tan or fine ashes for giving the latest spring cutting.—W. COLEMAN.

The Blue Grass of Kentucky.—As questions as to what this is have often arisen and may again be asked, the following note from the *American Agriculturist* may serve to answer them: "In an article in September last Prof. Gray expressed a doubt that the Blue Grass (*Poa pratensis*) was really indigenous so far south as Kentucky. This has called out several notes from friends in Kentucky and Ohio, who claim that the Grass must be a native there. 'S. C. J.,' Louisville, Kentucky, thinks the readiness with which the Grass takes possession of the soil, 'rooting out all other kinds of Grass,' is proof that it is native. This is, to us, the strongest evidence that it is a foreigner. As the aboriginal man receded before the intruding white man, in a similar manner do plants give way to foreigners. The Wild Oat that covers the hills of California to such an extent is a European species that has crowded out all native growth, and the same may be said of the Bermuda Grass in some of the Southern States. Mr. C. states that the reason for calling this beautifully green Grass Blue Grass is on account of its peculiar blue colour when in bloom, at which time he says the appearance of the Grass is most charming.

Luculia gratissima Killed by Repotting.—In THE GARDEN (Vol. XVIII., p. 631) is a note respecting this Luculia, in which it is said: "One of the reasons why this plant is not more frequently seen in greenhouses than it is is that it bears repotting badly; reducing the ball is sometimes fatal to it unless the plant is very carefully treated by being put into a moist gentle heat and shaded on bright days." About ten years ago I was employed in the gardens of the Prince of Lichtenstein, in Austria. The then head gardener of that place was one of those men who cannot rest until they see all plants potted once every year, every time reducing the roots. Amongst the plants thus operated on were several Luculias, about from 6 ft. to 8 ft. in height; though not very strong, they might have become so by a little care. When potting time in spring came round these plants had to be potted like the others, and shifted into bigger pots after the balls of earth had been reduced by means of a big knife. They had but few roots when I had to pot them the first time, and after the operation they were allowed to grow as well as they could. Next year's potting time having come round, I intended to protect my favourites, and was bold enough to object to potting them this season. Remonstrance was, however, useless, the head

gardener graciously replying, "Do what I tell you," and so I did. I found the plants had made a few roots, but not enough to fill the pots; the soil was sour. After having undergone the same process as last year, they were placed in a span-roofed house which was badly shaded, and the effect of an Austrian sun on them in the summer time may easily be imagined. Under these conditions the plants lingered for some months, but when autumn set in with its cold nights they dropped their few leaves and died. Whenever I have seen a fine plant of Luculia in England I have thought of those I had to kill against my will in Austria. Our weather has been truly English; till now it has been always mild and rainy, and Violets (the Czar) have been gathered out doors till lately.—E. HINDERLICH, *Neues Palace, Potsdam.*

AN ENGLISHMAN'S GARDEN IN SOUTH ITALY.

You may not have heard of the strange season we have had in Italy, where we can scarcely be said to have any winter at all. I am now staying in Naples with a friend, an Englishman, who loves flowers as a poet does, and has a large garden divided into several minor gardens, always so full of flower, that it seems a permanent exhibition of them. With such a taste and the means to gratify it one may easily suppose what may be done in Naples, where the sun is so strong and pleasant in the winter. Just now at Christmas we have still some flowers you would call those of summer, and also those of the autumn and spring. We have Zinnias, some of them beautifully variegated, Tropæolums, Dahlias, Daturas, Thunbergias, Pansies, Pyrethrums, Camellias, Iris, Maurandia, Bignonias, Buddleias, and Roses of all kinds covering the walls and flowering in the beds; but most surprising and beautiful of all are the Bougainvilleas, covered with flowers and buds, a most welcome sight at Christmas. I will not attempt to tell you of all the other flowers we have, and the profusion of Camellias and Roses, but think it must be a satisfaction to you to know that the proprietor of this garden is an Englishman, who benefits the place by showing the inhabitants what can be done in a fine climate. It may indeed influence the future prosperity of South Italy. Think what could be done here in horticulture! There is an Agave Salmiana nearly 20 ft. high and very imposing; close to that giant there are also several other plants of the same family in flower, as well as Bonaparteas and Agaves. There is a variegated variety of Cineraria maritima produced in this garden which would be the delight of all lovers of fine-leaved plants.

DELLA VALLE DI CASANOVA.

NOTES FROM NEW ENGLAND.

White Bluets.—In early spring the common Bluets (*Houstonia cœrulea*) are abundant all over our fields and meadows, and after they have ceased to blossom in the lowlands our mountain-tops are aglow with the starry flowers of the Little Innocents, as the children call them. On the White Mountains I find that the Bluets flowers are white and not pale blue, as in the lowlands. But the plants I gathered on Mount Washington when grown at Cambridge renounced their whiteness and assumed the pale blue colouring of the ordinary meadow type.

Tiger Flowers (*Tigridia Pavonia*).—In answer to "C. L. H.," I may say that the bulbs of the Tiger-flower multiply exceedingly and do not run out. Unlike many other bulbous plants, most of the small bulbs that were planted in the spring will wax strong enough through the summer months to blossom in August and September. I winter mine as I do Gladioli, that is, I tie them up in bunches which I suspend on nails in the potting shed. As mice are very fond of the bulbs, precautions are taken to have the Lilies beyond the reach of these nimble pests.

Evening Primroses.—Taking everything into consideration—hardiness, compactness, and evergreen character, size and brilliance of blossom, I think (*Oenothera missouriensis* is the best. But there are others, as *O. riparia*, *fruticosa*, and *f. major*, whose hardiness, copiousness, and permanent character define them as first-class hardy herbaceous perennials. And I have still another favourite, *O. speciosa*, a white flowering species from Texas. It blossoms all summer long, keeps densely green and bushy, and seems most at home in a sandy pocket in the rockery. It may be propagated in any quantity from root cuttings.

The Wood Lily (*L. philadelphicum*) at Home.—Along the banks of the Portland and Ogdensburg Railroad, between Portland and the entrance to the White Mountains, last summer I saw these

Lilies in all their glory. Studded along the banks they were everywhere, their red flowers peeping through the bushes here, swaying over the herbage there, extending far into the woods among the Ferns and underbrush, reaching from the arid bank above to the swampy verge beneath, for scores of miles these Lilies accompanied us. On isolated earthy sods that had fallen from off the top to half-way down the railway bank these Lilies bloomed like brilliants on a gravel bed; but nowhere did they appear more effective than near Sebago Lake, where they nestled on the bosom of a wide-spread Bracken field. Last summer a correspondent sent us flowers and bulbs of a yellow-blooming variety of this Lily.

Alpine Golden Rods.—Is not "Justicia" too severe on Golden Rods when he says (p. 352), "No Solidago is worth a place in a garden?" Had he been with me last July, rambling over and among the bald and rocky summits of the White Mountains, and seen *Solidago virgaurea* var. *alpina* as it was then in all its golden glory, he could not have helped admitting that there is one, at least, among the great rejected race that is neither coarse nor weedy, but compact, profuse, and bright enough to earn a place in any garden.

The Mountain Sandwort (*Arenaria grænlandica*).—This pretty little species is thickly scattered all over the Alpine region of the New England mountains, and in midsummer is one of the most conspicuous of alpine plants. It grows in the gravel, in Lichen tufts upon the boulders, in chinks, and on mossy spots among the rocks in open and exposed places. The plants are dense tufts from 2 in. to 4 in. high, with small, thread-like leaves and comparatively large white flowers. I brought home a quantity of plants, and, after cutting off their flowers and seed-vessels, planted them in gravel in a cold frame; though they lived along for a few weeks, ultimately all of them died. But from seeds which I sowed at the same time I have some good vigorous plants.

Cardinal-flower and Blue Lobelia.—I planted a quantity of Cardinal-flowers (*Lobelia cardinalis*) among the bushes in our hardy Orchid bed, and when they were in blossom in July and August, the brilliant blooms around the sombre green of the *Gaylussacia* bushes had a striking and lovely effect. I also used the blue Lobelia (*L. syphilitica*) in company with the Cardinal-flower, and though the blue ones, unlike their fiery relatives, were not very conspicuous in the distance, close at hand they were very becoming, and from July till Sept. perfect bushes of many shades of blue. The situation is cool, moist, and somewhat shady. Both of these Lobelias self-sow themselves extravagantly, coming up like weeds all over the ground in the neighbourhood of the old plants. The old stools, too form, good base crowns, and in this way are perennial. The blue Lobelia is far inferior in a decorative sense to the Cardinal-flower; both delight in rich damp land, and are equally useless in the open dry border.—W. FALCONER, *Cambridge Botanic Garden, Mass.*

THE CLIMATE OF JAPAN.

TAKING the four great islands of Japan as one, the length of the country measured north and south is roughly near 900 miles, its actual width at the broadest part below 200 miles, its average breadth much less, while between the main islands is enclosed much inland water, including the beautiful inland sea. Its area is given as 143,700 square miles, that of the United Kingdom being about 121,000 square miles. The southern extremity of Japan proper (*Kiushiu*) is in latitude 31° north; its northern extremity (*Yezo*) in latitude 45½° north. The whole country lies, therefore, much farther south than England, South Cornwall being in 50° north. Japan proper is an exceedingly hilly country. *Fuji-san* (the great mountain of Japan called by us *Fusi-yama*) is 13,000 ft. high, Mount *Mitake* 9000 ft., *Assama* 8500 ft., and so on. Many are active, some quiescent, volcanoes. The coasts are deeply indented with sea, and the sea deeply indented with promontories. There are said to be 3000 islands in the Japanese group; some of them as large as our counties, others too small to deserve mention. The climate of a mountainous country like Japan, with an extremely irregular outline, is of course very different in different places. It is influenced on a part of the coast by the warm ocean current (*Kuroshiwo*) which sweeps up from the warm south along its south-eastern shores into the Pacific. This has a marked effect upon the land temperature, producing greater warmth than is experienced in the same latitudes on the opposite side of Japan.

The northern island (*Yezo*) is chilled by a stream (*Oyashiwo*) setting down its eastern side from the cold sea of *Okhotsk*, which produces a notable effect upon the neighbouring land. So while the southern island (*Kiushiu*) is washed by the strength of the *Kuroshiwo*, and in consequence has almost a tropical climate during the whole year, the *Oyashiwo* runs along the east coast of *Yezo*, which

is bound in ice for twenty miles off the land during the whole winter. Moreover, Japan has its Mediterranean, and this exercises some influence upon its climate. It is (the inland sea) comparatively shallow, and is consequently influenced in some degree by the river water flowing into it, often more by the direct effect of the seasons. It is colder in winter and warmer in summer than the Pacific and Japan seas, falling to 50° in winter and rising to 77° in summer. Professor Anderson, of Tokio, states that from November to March inclusive, the weather is exceptionally fine, the days mostly warm and sunny, the sky clear and cloudless, the air dry and bracing. In April and May the weather is very changeable. From the middle of June to the middle of September there are heavy falls of rain, and these, combined with a high temperature, saturate the air with moisture and produce great lassitude and debility. About the middle of September the weather begins to improve, and October is usually a pleasant month.

Dr. Rein writes: "The climate of Japan reflects the characteristics of that of the neighbouring continent, and exhibits two great annual contrasts—a hot damp summer and a cold dry winter. These two seasons lie under the sway of the monsoons, but the neighbouring seas weaken the effect of these winds and mitigate their extremes, so that neither the summer heat nor the winter cold attain in Japan the same extent as in China in the same latitude." Dr. Malet distinguishes in Japan six regions. The first, and the most northern, named *Saghalien*, is boreal and little known (this is now ceded to Russia). The second is *Yezo*, also cold and but little investigated (see "Unbeaten Tracts in Japan," by Miss Bird, just published, a most charming and interesting work). The third and fourth correspond to the northern, middle, and southern parts of the island of *Nippon*. The northern region of that island, comprised between 42° and 37° north latitude, is comparable to the temperate climate of the north of England, though the extremes of heat and cold are much greater. The central region, in which *Yokohama* is situated, is similar to the south-west of France, but again with extremes of considerable variation. In the southern region the isothermic lines undergo a great declension, and the extremes are very wide. The fifth region, that of *Shikoku*, in which is *Nagasaki*, resembles that of *Provence* in its northern, and that of *Sicily* in its southern portions. The sixth climate is that of the islands making up the Southern Archipelago, and is tropical in its character. It has not been studied.

[The above, extracted from Sir Ed. J. Reed's "Japan," has been sent to us by Dr. Wallace, of Colchester.]

LATE NOTES AND QUESTIONS.

Insects.—W. S. B.—The insects which you forwarded are a species of *Galley-worm* (*Polydorus*). The best means of getting rid of them is hand-picking at night; they hide during the day under any available shelter, such as Moss, stones, lumps of earth, &c. If you have any Moss in your baskets, I should search it very thoroughly. Potatoes cut in half and slightly scooped out are very useful as traps if placed in the pots with the cut part downwards, as the *Galley-worms* creep under them for shelter, and can easily be shaken into a pan of boiling water, which will kill them instantly.—G. S. S.

Melon Pits.—Should these, well heated by surface pipes, have the beds also heated by artificial means for early forcing? My locality is near Coventry.—H. S. [Yes; bottom-heat is as essential as top-heat.—M.]

American Fruit-drying Machines.—I am very interested in these. Can any one furnish descriptions or catalogues of them?—H. L. WETHERED, *Ferncliffe, Tyndall's Park, Bristol.*

Weeds on Walks.—Will any one tell me what is the best preparation to kill weeds on walks with Box edges at this time of year?—E. B. C.

Chrysanthemum Buds not Opening.—Will some one tell me what is the best way to cultivate *Chrysanthemums*, as ours have been for the last two years a total failure? Amongst six or seven dozen plants of the best sorts there are not six flowers; the buds formed, but never opened out.—SUBSCRIBER.

Names of Plants.—E. Peters.—Next week.—A. K.—Please send another and larger specimen.—J. D.—*Acacia platyptera*.—T.—1, *Erica melanthera*; 2, *E. gracilis*; 3, *E. persoluta*.—G. (Devon).—*Colchicum autumnale* fl.-pl.—*Orchid*.—1, *Lelia rubescens*; 2, *L. albidia*; 3, *Cattleya Triane*.—A. B.—*Jasminum nudiflorum*.—R. R. O. D.—*Acacia dealbata*.

A Report on Sorghum Cultivation at Belvoir, in the form of a pamphlet of some ten pages, by Wm. Ingram, has just reached us. *Minnesota Early Amber* is the name of the variety tried at Belvoir, and Mr. Ingram is of opinion that it might be profitably cultivated by farmers in some of the warmer English counties, inasmuch as if its juices were insufficiently elaborated for the manufacture of sugar, a valuable supply of nutritious food would be obtained for stock.

We are glad to see that the cultivation of herbaceous plants is making progress in France. Mons. Godefroy-Lebeuf, of Argenteuil, sends us his catalogue of them, containing many illustrations.

TRUFFLES, TRUE AND FALSE.

EVERY one who has partaken of *dindon aux truffes*, or *pâté de foie gras*, on the Continent, or, indeed, in this country, must have remarked how very superior is the flavour of the French and German Truffles in comparison with the expensive and indigestible article sold as the Truffle in Covent Garden Market. It is, however, one of the things "not generally known" that the Truffle of the Continent is a very different plant from the Truffle sold as an esculent in Great Britain. Here we consume a species known as *Tuber æstivum* (often referred to as *Tuber cibarium*), whilst in France, Germany, and Italy they select the far more delicious *Tuber melanosporum*. The latter plant was long ago published as a British species by Mr. Berkeley, but it has latterly been placed in our text books as a synonym for *Tuber brumale*.

The left hand figure represents the Truffle of the English markets, that on the right the Continental Truffle; the English Truffle is black, with large warts, the Continental one is brown, with smaller warts. The English Truffle, *T. æstivum*, grows to be very large in size, whilst *T. melanosporum* never attains a large size. The spores of the two plants differ very much in form, for in the English plant they are covered with a reticulated network, whilst in the Continental species they are covered all over with a hair-like growth. These spores are contained in minute sacs or bags, from one to six spores in a sac, according to the species of Truffle. The bags are tightly compacted into the body of the Truffle. When the Truffle decays the spores are of course set free in the ground, where they germinate, and form a mycelium for another year's crop. The market for Truffles in this country is a bad one. One of the reasons for this is, the Truffle itself is a bad one, indigestible and ill-esteemed. Another reason is, the race of Truffle dogs is here fast becoming extinct, owing to the Dog Tax. When more stringent legislation was enforced in reference to dogs a few years back in this country, the Truffle dealers in the southern counties tried to get their Truffle dogs exempted from the tax. This attempt failed, and as the living to be derived from finding Truffles was always a hazardous and bad one, this extra tax on the Truffle dogs almost extinguished the trade.

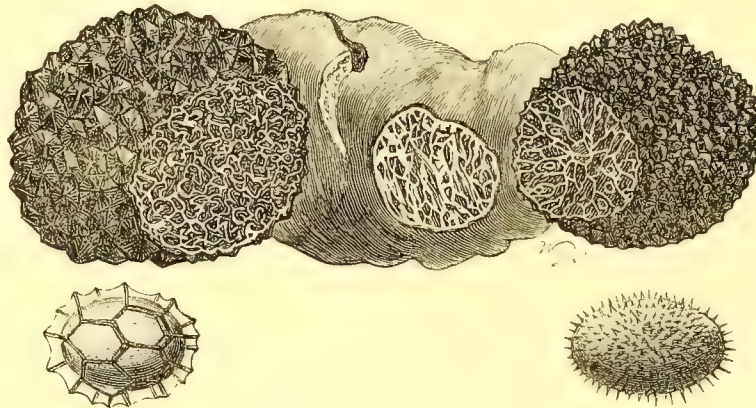
Hogs are fond of Truffles, and these animals are used on the Continent for discovering them. Squirrels are also fond of Truffles, and many gardeners have detected spots where Truffles grow by merely watching the scratching of squirrels. Strange as it may seem, Truffle dogs are (or were) equally fond of eating the Truffles when found, the Truffle dealer having commonly to take the Truffle out of the dog's mouth.

Although Truffles are truly subterranean fungi ("hypogæous," as the botanists say), yet they are often so close to the surface of the ground that they may be seen by any sharp fungus eye. A man with a sharp and well-trained eye has no need of either hog, dog, or squirrel, for he knows by experience the exact spot where Truffles are likely to be found. Truffles can commonly be bought of London dealers for 2s. 6d. a pound, but the better French article costs more.

A white Truffle is often referred to in books, and Napoleon I. is said to have preferred it to any other variety, but whether Napoleon I. was a reliable authority on fungoid esculents, we do not know. Our central figure represents the white Truffle; it delights in the euphonious cognomen of *Choiromyces meandriiformis*. It is common, it attains a very large size, and has a strong smell. We believe we are right in stating that Dr. Hogg and the Rev. M. J. Berkeley once made an experiment with this, and tried its esculent or non-esculent qualities. Both gentlemen were made ill, and a report of the result was published in one of our contemporaries. At one time a spurious Truffle used to be sold in Covent Garden named *Elaphomyces variegatus*. This is an atrocious species for the table, and it has now vanished from the market.

Truffles and Truffle-like fungi and subterranean and sub-subterranean fungi are very numerous in this country, and probably it is the same in most other countries where there are woodlands. They are not much sought for, and so get greatly overlooked.

One of the most remarkable of the British Truffle-like fungi is found in *Melanogaster ambiguus*; this plant is about the size of a pigeon's egg, and black inside. It has sometimes been sent to this office to be named, and is remarkable for its powerful, sickening, and horrible odour. So strong is this insufferable stench that a single specimen of the fungus will make a large room quite unbearable, and the odour remains for a long time after the offensive object has been removed. A close ally of this vile plant is *Melanogaster variegatus*, referred to by Dr. Cooke as 'the false Truffle of the Bath market. Dr. Cooke says this latter species "is eaten there (at Bath) in preference to the common Truffle." As the English "true Truffle" is a false one, the inhabitants of Bath are (or were) perhaps not much the worse for their [peculiar choice. F.



Truffles and their Spores.

Bird Preservation.—As you have apparently exhausted the subject of insect destroyers of the garden, may I suggest a change to bird or other destroyers of insects and other garden pests, for as every year furnishes increasing numbers of such pests, it seems a subject worth being ventilated for the benefit especially of the suburban or amateur gardener? As there seems to be a variety of opinions as to the destruction of birds, perhaps we should protect our fruits, seeds, &c., more than we do, but that becomes too expensive generally. I am the more induced to bring this subject before your readers because, in spite of recent laws in favour of the feathered tribe, too many, it seems to me, are destroyed, especially in the suburbs of towns, sometimes in ignorance of their use or necessity—a fact to be regretted. This is often done for the sake of a dainty meal, as, for example, in the case of the larks, which we see exposed for sale in poulterers' windows by the score. This bird seems not to be included in the most recent legislation on the subject of the de-

struction of small birds. I suppose there is some doubt about the utility of the lark, and also of some others. I am in favour of preserving birds, even the common sparrow, as an insect destroyer. I am, however, annoyed by its eating off my Primrose and Polyanthus blooms; but perhaps sparrows need to be kept under, which is easily done as they build in any hole, which may or may not be made for them, and their eggs can be taken. We have made a specimen coping for garden or other walls, in which are places for birds to build their nests; therefore they may be encouraged or easily destroyed, as may be found expedient. This was sent to the Melbourne Exhibition, along with other exhibits. These suggestions I submit to the consideration of those having knowledge and experience of the subject.—JAMES PULHAM, *Broxbourne*.

Old-fashioned Flowers.—There are many points in connection with this subject on which I want information. Is that wonderful Carnation figured in vol. i. of the *Horticultural Cabinet*, and also in vol. i., page 39, of Curtis's *Botanical Magazine*, under the name of "Franklin's Tartar" still in existence? Does any one know by figure or otherwise the Blue Hulo (extinct in 1787)? I have grown Carnations for many years, and this year have seed from Carnations grown among Sweet Williams according to a hint taken from page 123 of Bradley's "Planting and Gardening" (year 1731), from which the following is an extract: "This consideration leads me to advise the curious florists to plant of every good sort of his double Carnations in beds on a line in the middle, and on each side of them to set a two rows of single ones of choice colours, and among them some plants of Sweet William . . . and be assured of good varieties from them," &c. Some years ago I flowered a beautiful cream-coloured and lilac Picotee, with considerably over 200 blossoms on at one time, good substance and very much puckered. As I have never kept notes, though I have kept different growers' seeds apart, I have no wish to add anything to the proposed correspondence. If some seedsman would inform us whence these collections as advertised come, and on whose authority they bear the descriptions, it would be highly interesting; but perhaps this is too much to expect.—B. G.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

MORE NOTES ON LILIES.

A YEAR'S more experience with Lily growing has only made me more certain than ever that Lily bulbs are not truly perennial, but that an annual growth is formed, and that no Lily is in perfect health unless it renews itself annually. And I am led to believe that with very careful observation we should find all true bulbs to be only of annual or biennial duration. The whole subject was threshed out by "Dunedin" in the pages of this paper some time ago, but since then we have all had opportunities of finding out for ourselves if the theory is correct, and though most gardeners would laugh at the idea of every bulb renewing itself year by year, I believe it will be found that some of the greatest names amongst gardeners are on my side. This is what I believe. Take up a very healthy bulb of *Lilium speciosum*, for instance, when it is in flower. A new bulb is beginning to form in the middle of the bulb, with its axis at a slightly different angle to the present flowering stem, and this new bulb will next spring throw up a flowering-stem which will point in a slightly different direction to the present flowering stem.

In the centre of this new bulb and close to the corm is a tiny formation, perhaps at this time no bigger than a pin's head, which later in the year will be about as big as a small Pea, and which will go on growing all the winter and spring till the following summer it is as big as a Walnut, and by autumn has formed out of the old scales, which it lives upon, an entirely new bulb on a new axis, containing in itself also the germ of a new bulb. It is according to the time from which you date the birth of this axillary germ-bud that one is entitled to call a bulb a biennial or an annual growth. The new growths, in my belief, are always feeding on and exhausting the old scales, while the roots beneath the bulb and the stem roots above the bulb are the feeders to the stem with its buds and flowers, and it is on the power of the bulb as a whole to make these roots, especially those below the bulb, that the growth of the flower-stem depends. The Lily bulb then, supposing we took it in September, contains within itself three growths in one, the bulb for the following summer, and the present growth of flower-stem, and the tiny axillary seed-bud. That Lily bulbs are in a certain sense annual growths, is, I think, proved also by the fact that their roots below the bulb are of annual duration. This is not so very apparent, except to a practised observer, because the roots of the old bulb and the roots of the new bulb, as it were, interlace, and a continuous appearance of new roots is the consequence; but, if in autumn, when the flowers are past, you look closely at the apparently healthy old roots, you will see they are ceasing to be of any use, and have lost their plumpness, merely the skins of the roots being left; at the same time new roots are being pushed out from the corm. But these are feeding the new bulb, which will go on getting bigger and bigger till the time comes for the flower-stem to rise from its centre. It is impossible to make the subject very clear, and I am afraid few people take the trouble to thoroughly digest and understand what one writes, but I beg they will not criticise these theories without thinking a little about my meaning. Of course, if there are two axillary seed-bulbs forming, then the bulb eventually forms two bulbs, each on its own axis, each throwing a flower-stem, and eventually separating into two bulbs.

I hear Mr. Baines has come to think that Lily bulbs are of annual growth. My friend Max Leichtlin is still unconverted. The curious growth of *Lilium Washingtonianum* bulbs is his stumbling-block, because in the bulb of that Lily the new growth certainly does not seem to absorb the old growth. Perhaps this is the exception that proves the rule; but anyway, *Lilium Washingtonianum* is a Lily which has not been grown well yet, and the theory only applies to bulbs in full health. For instance, it is a proof of the argument that one never sees the flower-stem of this year on the same axis as the flower-stem of last year, showing that the bulb has made a new bulb growth on a new axis. But I once had a flower-stem come plump up the very centre of the old flower-stem which had been cut down to within 1 in. or 2 in. of the ground, and was quite hollow. Up the old hollow stem the new stem came, and thereby my theory seemed to be shaken. But when we uncovered the bulb we found it had made no new growth, but consisted of twenty or twenty-five old scales, each scale far apart from the other, with earth between. No new growth had been formed, consequently the bulb that threw up this flower-stem was the same bulb that threw up the flower-stem the summer before. This new flower-stem only grew a few inches high, and then, having nothing to back it up, died, and the bulb, having no renewal of itself, died also; so what seemed likely to upset my theory only confirmed it. It is not so easy to say what becomes of the old scales, and why one doesn't see them round the new bulb in October if you look at it then. I think one does generally see them as much as you would expect, and doubtless little but the mere skins of the old scales are left, and that is absorbed by the soil, just as the soil absorbs the skins of the scales of a flowering bulb of *Lilium giganteum*. You plant a huge bulb of *Lilium giganteum* in October; if it flowers by next October, there will be nothing visible of it but a little black slimy stuff which is part of the skins of the old scales, which scales have gone to form the great flower-stem, and three or four new bulbs round the stem-base. Talking the matter over the other day with one of the greatest gardeners in England (Mr. Stevens, of Trentham), I found he was quite prepared to accept my theory, and even to go the length of thinking the same of all true bulbs in good health.

What does Dr. Wallace, Mr. Elwes, Mr. Wilson, Mr. Burbridge, or Mr. Ellacombe, Mr. Harpur Crewe, Mr. D. T. Fish, or Mr. Hovey say? For if this is true of Lily bulbs, is it not true of all bulbs? I am convinced it is true of *Iris Xiphium* and *Erythroniums*, and something of the kind is obvious in *Crocus* and *Gladioli*.
FRANK MILES.

Bingham.

Seedling Aubrietias.—In an article on Aubrietias (p. 10) allusion is made to a pink variety which I raised from seed a few years ago, and distributed among a few friends for trial. It is of value, being the first break with which I am acquainted in Aubrietias, from the various shades of lilac which characterise the blossoms of all the varieties commonly cultivated in our gardens. Raising many thousands of seedlings every year of this most useful and hardy spring flowering plant, I have succeeded in securing many characterised by the increased size of their flowers, by vigour of growth, and by a free habit of blooming; but this shy little pink seedling is the only instance of a marked variation in colour being produced, and I look upon it in skilful hands as the possible precursor of a strain of brighter coloured varieties. It needs to be improved in habit; it follows *A. deltoidea* rather than *A. græca* or *grandiflora*, and, forming dense low tufts, it is perhaps better adapted for the rock garden than flower-bed. In our floral arrangements for early spring we very much want a plant of the habit of the Aubrietia that would give us a flush of crimson, or pink, or bright red. I hope it will be the fate of my little seedling to give us in its seedlings something in this way. The evolutions of distinct novelties is a slow affair in floriculture at starting.—W. INGRAM, *Belvoir*.

Should Cut Grass be Left on Lawns?—We have a large, fine lawn at our college, which is kept nicely mown, and is one of the most attractive features of the grounds. In mowing, the Grass was not gathered, but allowed to fall upon the lawn. As the lawn was mown quite frequently, the presence of the dead Grass was not so obvious as to provoke remark, except when from some mishap the intervals between the cutting were too long. In August a lawnmower with a gathering attachment was brought upon the grounds. This machine with its attachment worked very easily, and did its work perfectly, and just about as fast as though there were no attachment for gathering up the Grass. By using this mower side by side with one with no gatherer there was soon noticed a very striking contrast in the two areas mown, very much in favour of the one where the short Grass was gathered up. All admitted that the lawn was much improved by removing the cut Grass; but the important question was raised, whether or not the removal of the Grass would work injury to the lawn. Professor Beal and others thought that even this light mulch might benefit the lawn to no inconsiderable extent.—The above, which I notice in an American paper, is a question that interests me, and I shall be glad if any of your correspondents will kindly give us their experience of the matter.—J. E. H.

Anthurium floribundum.—This is one of the most useful, if not the showiest, of the many kinds of Anthuriums in cultivation. It is valuable as a pot plant, and particularly useful in a cut state for bouquets, &c., as the spathes last long in good condition, and being of ivory whiteness afford a fine contrast to the short erect spadix, which is deep green. The spathes, moreover, are not small and therefore better adapted for bouquets and similar purposes than kinds with larger spathes, such as *A. Scherzerianum*, *A. ornatum*, and others.

NOTES AND READINGS.

Judging from what we have seen and heard of the new *Jasminum* shown at a late meeting of the Royal Horticultural Society, it is likely to become a popular winter-flowering subject. The stove and greenhouse *Jasminums* are all favourites, but the flowers are evanescent, except in the double form of *Sambac*. This new single variety is said to be more lasting, a profuse flowerer, and sweetly scented.

Would some member of the trade explain why *Tuberose*s vary so much in price in different trade circulars? We have before us just now an offer to supply fine roots of the best variety at £1 5s. per 100, while the same roots by some other firms are quoted at 9s. per dozen, the kind known as *Pearl* being highest priced. It would appear the demand for these is increasing, their exceedingly easy culture, comparative freedom from insect pests, beautiful and fragrant flowers, unsurpassed by either the *Stephanotis* or *Gardenia*, and the length of time they can be had in bloom, rendering them the favourites of everybody who has a warm frame or greenhouse. During the past year (1880) we had the pleasure of seeing *Tuberose*s daily in flower from June till the end of December. The bulbs require to be potted as soon as received and started in a moderate heat. They will not all throw up their tall flower-spikes at the same time, and those that do may be made to succeed each other for a long period by pushing some on in the stove and retarding others in a lower temperature. They should never, however, be subjected to a temperature so low as to bring growth to a standstill; the leaves turn yellow and the flowers are not so good.

A contemporary, which has not hitherto been accused of subscribing unconditionally to the "Thirty-nine Articles," has actually treated its readers, I observe, to a homily this Christmas in which singleness of purpose and nobility of aim are earnestly inculcated, concluding with a really evangelical admonition to which all must hopefully subscribe. Prominence is given to the fact that 1880 will in future be remembered horticulturally as the year when *Strawberries* were first forced under the electric light, but we do not think it will be a red letter year to many gardeners on that account. We are not inclined to make much of this business, horticulturally speaking. It may serve as an interesting hobby for some people, but the most pressing want of the present time is information as to how we can make the best use of the light which Nature has already provided us with. The waste of fuel in our furnaces is nothing to the waste of sun-heat and light occasioned by bad management, ignorance, and bad hor-

ticultural appliances. It will be a year to be remembered when a Dr. Siemens will invent a ventilating shutter that shall be self-acting, worked by the temperature, on the principle of the barometer plummet, and when gardeners will be taught how to dispense with sheets and mats and other opaque coverings, which are at present used to shut out the sunlight three or four hours or more out of the twenty-four, as happens when coverings are put on perhaps two hours before the sun sets, and left on till it is two hours above the horizon next day. It is quite a common thing, even in well-conducted gardens, to see sleepy men uncovering long ranges of pits and houses during spring and early summer mornings hours after all Nature out of doors has been basking in the genial and life-inspiring sunshine. It is skylight, not candles, that we want at present to force our early *Strawberries*, *Grapes*, and *Peaches*.

It is gratifying to find a cultivator like Mr. Cox, of Redleaf, corroborating what has been reiterated in *THE GARDEN* more than once, and particularly of late, in relation to the training of fruit trees. Speaking of the *Plum* trained on the fan system, and permitted to extend freely, he says:—

I am compelled to admit that so managed, that is, more in accordance with natural conditions, the trees are more healthy and longer-lived, and that although it is generally some years before they become very fruitful, yet, when such is the case, the very act of fruit-bearing, judiciously regulated, forms the natural restrictive power through which we are enabled to maintain the balance between fruit-bearing and wood-development, so as to keep the tree in a healthy and fruitful state for a long series of years.

The reviewer of "Rambles among the Hills" thinks the one above all things concerned with the beautiful living things of Nature—the gardener—is often by reason of his work prevented from seeing much of the loveliness of his own land, and hence can only have restricted views regarding those "aspects of Nature" which concern his profession. It must be admitted that although the "ranks" have, perhaps, produced the best landscape gardeners, gardeners are not often fitted for that position. They have neither learned nor seen enough, but through no fault of their own. The wonder is they are so clever and able as they are. They have one failing, however, which they might remedy. Wordsworth said that many of the poets before and of his age did not borrow their images from Nature, but from one another, until they had become in a manner conventionalised, and were about as true to Nature as the conventionalised flowers and figures of the sculptor. It is pretty much the same with gardeners; they copy one another, and their holidays are principally spent not in seeing and studying Nature, but in noting what their neighbours have done, whether it be good or bad, and in imitating which they are just as likely to go wrong as not. Horticulture shows this in all its phases, and particularly in the various "styles" of landscape gardening. The Dutchman, never having anything but flat prospects before him, could conceive of no other diversification of the earth's surface than a piece of ground divided into little squares and panels intersected "with canals and ditches of stagnant water," and sometimes varied with mounds, but always symmetrical and decorated with abundance of ornaments. Yet it attained to the dignity of a "style" which at one time was often copied in this country, and is yet to be found, only altered and modified into carpet-bedding and other formal patterns.

There is need for gardeners to travel, if they could only afford to do so, and see other landscapes than their own, as well as other gardens. Hugh Miller, coming from the bolder landscapes of the north, was depressed with the monotonous flats of Yorkshire and the dreary fens of Lincoln—"the long grey fields" of Tennyson "with the bulrush by the pools"—and he went so far as to say that the inhabitants of such tracts could not only not understand other aspects of Nature, but could not be such patriots, their country being without striking features of a kind to impress them, or that could attach them to it by sentiment or remembrance.

I am glad to see that the *Saturday Review* strongly opposes the spoliation of Epping Forest by the making of a railway. There really is all the rail accommodation needed at several stations in the forest even now, one within about a quarter of an hour's walk of High Beech. The scheme of another railway can only

be destructive to the remaining charms of the forest. I am sorry to hear of an elaborate series of roads and walks being projected in Epping. I hope it is not true. Railways run through it even now, and there are plenty of means of getting to it. The thousands who go to Chingford now make a disgraceful uproar there—a kind of Donnybrook fair—while the quiet parts of the forest have no attractions for such people. The danger is cutting up the forest to form a rendezvous of this kind near railway stations.

Mr. Brotherston has a laboured article supporting the unsupportable, *i.e.*, that tender flowers are as cheap as hardy ones or cheaper. Long and wearisome pages are filled to this end. Many of the nobler hardy flowers from Daffodils to Pæonies will thrive in properly prepared ground for years at a time, whereas bedding plants have to be put out every spring, and taken up and increased every autumn. This is the broad fact, and miles of print cannot alter it. The public see it too, and some of the big “bedding men” who astonished the natives in their own localities are evidently sore that any one should doubt the merit and enquire the cost of the whole ghastly business; and also what does it deprive us of?

But I notice Mr. Brotherston advises after all “the common-sense plan of finding a place for each.” He is already a “happy-mean” man, and by-and-bye, as his eyes open, we shall probably find him among the reformers. Of course, even all the youngsters know that in many places a few years ago you might look in vain for even a white Lily. This is true still of too many places. How many gardens in a county contain one-fourth of the first class things in cultivation? In how many gardens are they properly arranged or grown? To have a few in a border is only one of the least important ways of growing them.

While he, on the one hand, proclaims himself an “advocate of hardy plants,” on the other he takes the most effective means of discouraging their culture by frightening his readers with an exaggerated account of their cost. He has been at some pains to procure the highest estimates he can find of the value of hardy plants, while at the same time making discoveries of cheap “bedding stuff” that will gladden the hearts of the devotees of the bedding style. He knows a member of the trade who will supply general bedding-out stock at from £2 5s. to £4 10s. per thousand—all good plants fit for planting out of single pots or store pots by May next; but his hardy plants, which are reckoned by hundreds, are from £3 10s. to £7 10s. per hundred, or let us say from £35 to £75 per thousand. This is a tale! Mr. Brotherston’s hardy plant man must have suicidal tendencies in his business capacity, and his man who offers the cheap bedding plants must be a horticultural “Brownie of Blednoch,” who works for nothing.

It therefore only remains for Mr. B. to tell us of his “cheap John’s” whereabouts, for he surely will not want customers. We have at the present moment one of the cheapest catalogues before us, in which *Ageratum*s are quoted at the rate of £6 per thousand, *Calceolarias* at a rate per doz. and 100 which would bring them up to £10 per 1000. Common bedding *Geranium*s, like *Master Christine* and *Vesuvius*, at the same rate, and higher variegated kinds like the old *Flower of the Day*, and bronzes and tricolors at from £1 4s. to £1 5s. per 100 “for bedding.” Common blue *Lobelias* in pots at 15s. per 100, or about £7 per 1000, none out of a list of twenty sorts being offered for less. Bedding *Pansies* at from 6s. to 18s. per 100, or say from £2 10s. to £8 per 1000. *Verbenas*, “in May for bedding,” are 16s. per 100, lowest price per 1000, £7 10s. *Succulents* are dearer still, the cheapest *Echeverias* being quoted at from 15s. to £1 10s. per 100, and others going up to £10, carpet plants and general stock going at the same proportion.

Turning to hardy plants, I find that Messrs. Clibran & Son, of Cheshire, for example, who make a speciality of hardy plants, as many of the trade do now, offer a hundred varieties “of fine showy perennials” at from 21s. to 40s. per hundred, and half that number of varieties at half the price, and many of these, be it remembered, can be at once divided into several, a thing impracticable with most bedders, which have to be renewed every year, while a hardy plantation is permanent. The last, too, are every day becoming cheaper. Will Mr. B. be persuaded to tell us where

his marvel of cheapness lives? But the nurseryman is not the only wonder he knows. He is also acquainted with a gardener who produces 200,000 bedding plants at a cost of 2s. 1d. per hundred. It is not asserted that this feat is accomplished by Mr. Brotherston himself, for what reason we cannot understand. We also know gardeners who bed out a similar quantity of plants, bedding being indeed the chief feature of their charge, as well as the most costly, and the general expenditure of the year is two or three thousand pounds. If, therefore, the nearly quarter of a million of bedding plants can be produced for a fractional £250 of this sum or thereabouts, it is evident that the gardener must simply squander the odd £2000 or more. Can Mr. Brotherston name the place where the feat he speaks of is accomplished? and will he tell us the garden expenditure generally as well? If he cannot do this he has no business to make such a statement, for it is perfectly well known that bedding stock is not produced at this rate, nor do we believe any experienced gardener can be found who will deceive his employer by making such an offer.

A good deal has been said about *Roses* for forcing purposes lately. It is singular that they have not occupied a far more important place among forced flowers long ago, seeing that there is hardly anything more acceptable than *Roses* between November and May even among *Orchids*, and they are comparatively easy to grow. For winter forcing pot plants are best, but for supplying flowers between February and May planted-out trees are by far the most serviceable; a good single tree two years old will produce a large quantity of flowers. There seems to be abundant testimony on this point, and the best sorts for the purpose appear to be *Gloire de Dijon*, *Reine Marie Henriette* or red *Gloire de Dijon*, *Maréchal Niel*, *Madame Levet*, *Cheshunt Hybrid*, *Solfaterre*, *Climbing Devonensis*, *Duchess of Edinburgh*, *Madame Trifle*, *Niphotos*, *Madame Berard*, *Souvenir de la Malmaison*, *Lamarque*, *Céline Forestier*, *Cloth of Gold*. These are mostly all *Teas* and *Noisettes*, or *Bourbons*. Among *Hybrid Perpetuals* the favourites are *Général Jacqueminot*, *Glory of Waltham*, *Alfred Colomb*, *Anna Alexieff*, *Horace Vernet*, *John Hopper*, *Comtesse de Chabrillant*, *Duke of Edinburgh*, *Madame Lacharme*, *Victor Verdier*, *Reynolds Hole*, *Madame Croplet*, *Paul Néron*, *Pierre Notting*, *Charles Lefebvre*, *Prince Camille de Rohan*, *Abel Grand*, and *Victor Verdier*. These are some of the kinds that our most extensive *Rose* growers of great experience grow specially for forcing and greenhouse culture, being found particularly adapted for that purpose. The *Teas* are specially favoured, as they are rapid growers; the climbing section of them soon produce great quantities of flowers.

Poets like William Morris no doubt do now and then hit on a truth by happy chance, but they cannot be accepted as authorities on all subjects. They are just a trifle too ethereal. A wild *Rose* is no doubt beautiful and attractive, but getting up a violent enthusiasm for it beside a *Gloire*, a *Maréchal Niel*, or *La France* requires a mighty sophistical imagination.* It must be a peculiarly sensitive olfactory organisation, too, which can detect a scent in the wild *Rose* than which “nothing can be so sweet and so pure.” The cultivated *Rose* shows the “art which does mend Nature” in a surpassing degree, and some of the varieties exhibit a matchless wealth of beauty in form and colour, and exhale a perfume that is indescribably rich and delicate. We are not speaking of the “florist’s” *Rose* after it has been tailored by him. A flower of the old *Coupe de Hébé* is a study in itself, and is as unlike a wild *Rose* as a *Rose* can be, but it possesses an almost unapproachable grace and loveliness, and there are many others little inferior to it. No; a poet in a garden may be useful now and then, but he ought to be chained. He is one of those people who think gardening consists in

Emptying the rain of the thunder showers
Out of the cups of the heavy flowers.

We read a day or two ago that Mr. Gladstone’s advice to farmers to grow *Strawberries* has been followed with great success by one well-known author. Mr. Blackburne, the author of “*Lorna Doone*,” has taken the advice, with such happy results that he recommends his friends to follow his example. Mr. Blackburne finds fruit farming and literature somewhat more successful than

* We think Mr. Morris referred to old garden *Roses* rather than to wild ones.—Ed.

poor Mr. Mechi has found shilling razor-strops and scientific agriculture; for Mr. Mechi was again in the bankruptcy court. It is simply astonishing what a man like Mr. Gladstone can do! If he, or some one else like him, would only take up this "bedding-out" business and suggest its abolition, it would be done for directly. The remark about poor Mr. Mechi's scientific farming suggests several reflections. Mr. Mechi's experiments have no doubt been instructive to many, but he never could make any one believe that a peck or even two pecks of Wheat was enough to sow an acre. There are not a few scientific horticulturists of Mr. Mechi's type, only not half so clever or so honest. We do not mean to say that the scientific mind is an incapable one, but there is often a crack in it. Such people are often as blind as bats, and cannot perceive either cause or effect, however plain both may be placed before their eyes. The great fault of our so-called "scientific investigators"—a section of them at least—is that they either cannot or will not conceive of things as they exist, but persist in looking at everything through their scientific spectacles; hence their blunders and the scepticism with which their teachings are regarded by practical people.

Recessed walls, similar to those described in THE GARDEN lately, are not uncommon, but a difference of opinion exists as to their utility. They are not adapted for fruit walls, unless the "recesses" are large enough to accommodate the trees, and they are not then so ornamental; but for what are called "conservatory walls," devoted to the less hardy flowering shrubs, the style is not objectionable, except for the reason that the trees growing in the recesses are more apt to become infested with insects than when growing on the open walls, the arches preventing the occasional cleaning of the trees by the rains. It is doubtful if anything but a plain surface is best for fruit trees, which, when well managed, are the best ornaments.

Many of the Chrysanthemums, though bright and showy, are not adapted for personal decoration, and the ideal flower of the florist is perhaps the worst of all; but there are a few that produce pretty and attractive flowers for the purpose, and one of the best is the variety named Felicity, a reflexed kind with pure white flowers when nearly expanded and not too large. The petals are rather loosely arranged, and the lower ones project beyond the body of the flower, giving it a star-like and graceful appearance. The flowers are produced very freely, singly, and in clusters, and may be used with good effect either way.

Some kinds of vegetable and flower seeds are going to be dear this season, and gardeners will have to exercise considerable economy in their orders. An acquaintance with the "trade" enables us to state that many gardeners, as well as employers who order their own seeds, display great ignorance in filling up their order-sheets. By far the smallest orders proportionately come, as a rule, from the largest gardens, and *vice versa*. We have heard of a £20 order for a $1\frac{1}{2}$ -acre garden, said order including 2 lb. of Lettuce seed and 4 oz. of Onion seed. Such disproportionate quantities are common; and one noted seedsman, to his credit be it said, is in the habit of revising such orders in a way to make them better suit the wants of his customers. He divides his seed orders into two classes, "daft orders and wise orders," and he shrewdly gauges the ability of his gardener customers by their order-sheets—not a bad way of estimating a man's practical capacity either.

For nearly half a century our friends the florists have been conferring diligently together in order to decide in what pattern Nature ought to "cut" her Tulips. A correspondent of the *Florist* has in the last days of the year summarised the deliberations of the body as regards the "hardy Tulip," and should the world go on, and the writer's health permit, deliberations on the subject will still be carried on for an indefinite period. The pattern sketched for Nature to copy is briefly as follows: 1st. "Every Tulip" is to be circular in its outline, and it is to be half as deep as it is wide. 2nd. It is to have six petals, three inside and three outside (Nature has proved rather obstinate in this direction, and has gained a point), and all are to be of the same height, and stiff and smooth at their edges (any horticultural barber may use starch). 3rd. Nobody should be able to see through between the petals. 4th. There should be exact uniformity between the outline of the cup and the outline of the upper margin of the petal, the radius of "whose" curve should be

equal to half the diameter. 5th. We beg to state, on our own account, that as paste and scissors will always be needed to enforce compliance with these rules, they may be used as heretofore, and, 6th. That the correspondent of the *Florist* is not a Chinaman, but was born and bred in England. We believe it has been suggested by a member of the body of florists, that, in view of the obstinacy of the subjects they have to deal with, and the discouragement met with in their earnest and well-meaning endeavours to "mend Nature," the Artificial Flower-makers Company be appealed to to make their Tulips for them, or any flower they may want. It is pointed out that every florist could then have his favourites cut to please him in the same way as his clothes, thus removing a source of much irritation and ill-will among the members (humble members of the fraternity have not unfrequently appealed to their fists in order to settle the exact length of a petal), and, above all, green-fly and woolly aphis will be extinguished for ever.

There are, however, florists and florists. Of that section who industriously devote themselves to the production of new and good things for the decoration of our gardens, taking what Nature sends them in a thankful spirit, and without confining her to one pattern, we desire to speak with becoming respect, for to them we owe much. This is a modern type of the florist, however, and the only one worthy of the name. The specialist who devotes his days and nights to the production of ideal flowers—destroying such as do not please him, and tailoring those that do to make them still more "perfect"—is not an individual who inspires either love or admiration.

It was Addison in whose mind Nature's works inspired the loftiest thoughts and admiration, as shown by his works, who felt so little respect for the florists of his day. He ventured once, in the presence of some Tulip fanciers, to admire a particular flower, and was laughed at by the company for his taste. Upon that he praised a second and a third with "the same fate;" and he therefore humbly "desired the owner of the garden to let him know which were the finest flowers," since he himself "thought the most beautiful were the most valuable." "But," says Addison aside, speaking of the florist who showed him these things, "he seemed a plain honest man and a person of good sense had not his head been touched with that distemper called 'Tulip mania;'" and he continues, "I have often looked upon it as a piece of happiness that I have never fallen into any of these fantastical tastes, nor esteemed anything the more for its being uncommon or hard to be met with." It is instructive to read what a man thought of the florist and his productions who looked upon the whole country as "a spacious garden," and who could say there "is not a bush in blossom within a mile of me which I am not acquainted with, nor scarce a Daffodil or a Cowslip that withers away in my neighbourhood without my missing it."

PEREGRINE.

NOTES FROM VIENNA.

On a recent stay at Vienna I visited the town garden of Baron Rothschild. It being situated in a very populous part, one did not expect to find a garden of large extent. On entering, a well-kept undulated broad lawn is a pleasant sight, as on it, dotted about here and there, are various choice deciduous and evergreen shrubs and trees. Of Conifers, the majority consists of the common Spruce, various Firs and Junipers, *Abies Nordmanniana*, *Thuopsis borealis*, *Pinus Pinsapo*, and several specimens of *Wellingtonia*, which have, I may say, well withstood the disastrous effects of last winter. Deciduous trees are represented by conspicuous specimens of Beeches, Birch, Maples, Plane trees, Weeping Willow, and Ash, not to forget the rich collection of deciduous flowering shrubs, such as choice *Spiræas*, *Lilacs*, *Symphoricarpos*, &c., associated with dark-leaved *Hollies*. A free distribution of hardy American *Azaleas* and *Kalmias*, which seem to brave well our usually severe winter, is a source of great attraction in spring. *Aucubas* are also planted out in great masses, but they are yet too small to look well.

The ground under trees and in the shrubberies is mostly covered with Ivy and trailing variegated *Euonymus* (*Euonymus radicans* fol. var.). A small lake associated with rocks contains a few plants of the white and yellow-flowered *Nymphæas*, seedlings which originated in a piece of water in our neighbourhood. Small seedlings of these may be valuable for many smaller kinds of aquariums, where big plants would not look so well. The flower beds in front of the house, occupied during the summer with flowering and orna-

mental-leaved plants, contain during the winter small Conifers with Ivy and variegated trailing Euonymus. Two oblong beds of that very floriferous pink Rose Madame Fellenberg, bearing a considerable quantity of blooms expanded now (Dec. 6), were very conspicuous.

Laxenburg.

LOUIS KROPATSCH.

THE ROSE GARDEN.

STOCK FOR MARECHAL NIEL.

"J. S. W." asks (Vol. XVIII., p. 643) the opinions of your readers as to the best kind of stock on which to work this Rose. Doubtless information on this subject would be acceptable to many besides "J. S. W." I for one unfortunately can endorse all he says about the Maréchal being so precarious, although my experience probably does not extend over such a long period as his. I also frequently hear the same account of it from other good Rose growers. Yet the Maréchal may sometimes be found doing well, and producing grand blooms for years in perhaps some old tumble-down greenhouse, whose owner makes no pretension whatever to a knowledge of Rose growing. Two years ago, a good plant three or four years old on the Manetti, growing in a brick pit built for it in a greenhouse here, after making fine growth, suddenly cankered just under the surface of the soil, and was soon in a miserable condition. We raised the sides of the pit, and added 6 in. of soil, into which the plant rooted above the canker, thus becoming an own root plant, but it was again attacked by the disease above the new roots, and we had to throw it away. Yet another plant in a pot being similarly attacked and somewhat similarly treated by having a portion of the stem surrounded with soil enclosed in the two halves of a split pot was quite renovated, and is now healthy and vigorous.

Being desirous of planting out some Maréchals under glass, we last year sought advice from various sources on this subject, and in reply received a variety of opinions. One recommended the Seedling Brier as a stock; another spoke strongly in favour of own root plants; a third recommended us to work the Maréchal on Gloire de Dijon; and a fourth thought the De la Grifferaie would prove the best stock for it. From one good grower and successful exhibitor we had this curious piece of advice: "Life is not long enough to plant own root Maréchal Niels;" intimating that on its own roots it is a slow grower. On this point there is undoubtedly a mistake. We decided to plant some on De la Grifferaie and some on its own roots. Young plants were planted in May in good soil. Some of them were allowed to make two shoots only from the base, the original plants being cut down. The strongest plant on the De la Grifferaie has made growths measuring 17 ft. and 18 ft.; the strongest on its own roots has made 19 ft. and 14 ft., all thick in proportion. The others have made growths not far short of these. So far there is no sign of canker, but one never feels quite safe from it. Perhaps some one may discover the cause of the peculiar liability of this Rose to fail; that would be one good step towards finding a cure, or what would be better prevention.

G. DUFFIELD.

Winchmore Hill.

IRRIGATION AND ROSES.

Two of the greatest difficulties with which the cultivator of the Rose in the open ground has to contend are dryness and natural poverty of the soil and late spring frosts, or it may be over early excitement in mild winters. The first is not always a difficulty, because the soil often happens to be naturally suitable, *i.e.*, when it is a strong retentive clay, which simply requires enriching and deep culture. Such a soil will grow Roses well without artificial waterings, except, perhaps, in summers of unusual drought. Very many of the readers of THE GARDEN will remember the magnificent Roses which used to be staged by the late Mr. Harrison, of Darlington, and also the exceptionally strong, healthy Roses which he used to distribute every season from his Scoreton Nursery, the result of culture on a strong, rich, yellow clay. But everyone is not so favourably situated as to soil; very many have to fight their way with light sandy material, or with a poor, brashy, or gravelly soil, or it may be with soil on a dry, gravelly bottom. A really and naturally good Rose soil is the exception and not the rule, but I am satisfied that, with a judicious application of manure and thorough attention to watering, Roses can be grown on any soil. I am prepared to say this from what I have seen accomplished on poor sandy material with the means of complete and thorough irrigation at command—irrigation effected by means of underground channels, drains, in fact, for letting in the water, accompanied with drains for letting it out at pleasure. The overflow drain was stopped while the water was turned on say for one night. When the Rosery became sufficiently soaked, the inflow was stopped and the overflow drain opened,

thus drawing off all superfluous water. I never can forget the fine healthy bushes of the choicest Hybrid Perpetuals which we had, and the dozens of huge flowers, not one or two fine blooms, but quantities. I never before nor since have seen such blooms of Paul Neron, Pierre Notting, Cheshunt Hybrid, Madame Lacharme—indeed the cream of the catalogues—as used to be grown at Canford Vicarage under this system of irrigation. I have no doubt that the comparatively hot and dry summers of Dorset, accompanied with this complete feeding of the Rose plants, strengthened and ripened the wood, and resulted in such a wealth of Roses. I should, however, be prepared to believe that irrigation would not be so effectual in the colder north; still, where irrigation can be applied without much difficulty, I say so by all means. We read of wonderful results from irrigation in Spain, California, and other foreign places, of which the above instance reminds one. Irrigation there is applied over the surface; in this instance the water was applied from underneath, so that the walks and beds were not disordered or rendered uncomfortable. *Mimulus cupreus*, the little creeping coppery Monkey Flower, was a sight worth seeing growing on the surface of the Rose beds, where it never ceased flowering.

W. D. P. P.

APPOINTMENTS.

- Jan. 10.—SALE of *Lilium auratum* bulbs at Stevens' Rooms.
Jan. 11.—ROYAL HORTICULTURAL SOCIETY, South Kensington. Meeting of Fruit and Floral Committees at 11 a.m.
Jan. 11.—NATIONAL ROSE SOCIETY. General Committee Meeting at 3 p.m. Horticultural Club, Arundel Street, Strand.
Jan. 13.—SALE OF ORCHIDS at Stevens' Rooms.

NOTES OF THE WEEK.

Two Good Winter Plants.—What an exquisite winter flowering plant is *Euphorbia jacquiniæflora*! It has been unusually good with us this season; it has been flowering for a month past, and still continues in great beauty. The plants of it first cut are just bursting forth into flower again. I have cut and still can racemes of blossoms 18 in. in length, with fine bronzy leaves and crowded with bright orange-scarlet flowers, quite a feast of floral beauty. Another useful winter plant is *Plumbago coccinea*; the trio, treated with plenty of light and a fair amount of heat, produce a grand display at this time of the year. Of each of these I enclose specimens.—J. HOPKINS, *High Cross, Framfield, Sussex*. [Very bright indeed these excellent specimens were, the racemes of *Euphorbia* sent us measuring 15 in. long; of the scarlet *Plumbago*, the best spikes were about 10 in.—ED.]

The New Griffinia which has recently been introduced by Messrs. E. G. Henderson & Son, Pine-apple Nursery, Maida Vale, and named *G. hyacinthina micrantha* by Mr. Baker, of Kew, proves to be a really desirable plant, even superior in many respects to the typical form. Its chief distinguishing characteristic is the freeness with which it flowers; every small bulb having produced a fair-sized umbel of blossoms, and a group of plants all about one stage of flowering, makes a showy display in one of Messrs. Henderson's houses. A striking variation with regard to the colour of the flowers is also very apparent, for not only is deep violet-purple similar to that of the type represented, but also every conceivable gradation to pure white, an acquisition in the case of cut flowers in midwinter, and the blossoms continue long in perfection. It is apparently a strong grower, and as easily managed as the other kinds. These plants under notice are in pots and placed in a moist, moderately warm atmosphere. As the varietal name *micrantha* might convey the idea that the flowers are unusually small, we may add that they are really not so; in fact, some of the finest are quite equal in size to a small flower of the typical form.

Iris (Xiphioid) Histro.—Mr. Kingsmill sends us from his garden at Eastcote, Pinner, his first flowers of this beautiful bulbous Iris. It is much earlier than its equally beautiful congener, *I. reticulata*, and therefore very desirable, though it is to be regretted that its scariness debars it from being grown so extensively as it deserves; it is certainly a plant which some of our enterprising nurserymen might introduce in quantity from its native habitat on the Mounts of Lebanon and Gerizim, where it is said to grow plentifully. It is taller than the *Netted Iris* (*I. reticulata*), and its blossoms are much lighter in colour, but about the same size. The colour is a rich bluish-purple, the lip-like petals or falls being copiously spotted with the deepest purple relieved by a conspicuous crest of bright gold.

New Begonia.—The new *Begonia* which was brought by Dr. I. B. Balfour from Socotra has been named by Sir J. Hooker B. *Socotrana*. It may now be seen in flower in the *Begonia* house in

the **T** range at Kew. It is a showy species, with large round leaves set on the stalk in a shield-like manner; the flowers are roundish about the size of a florin, and of a clear rosy-pink colour. The seed-bearing flowers have six petals, and the pollen-bearing ones have but four. The plants at Kew are about 9 in. in height, but as they are young and immatured they do not show the true character of the plant. Eventually when well grown this new *Begonia* will doubtless prove a great acquisition, and will probably be the forerunner of a new race of hybrid sorts.

A Fine Christmas Rose.—I enclose a photograph of a beautiful specimen of *Helleborus altifolius*, which I purchased here for one guinea. The plant was, I believe, grown in the open ground near Plymouth, and potted up in an 18-in. pot in the end of October. It is exactly 3 ft. in diameter, in perfect health, and has more than 100 blossoms on it. I have never seen any thing of the *Helleborus* tribe better, if so well, grown. Some of the flower-stems are nearly 2 ft. in length, thrown well up above the foliage, which is ample. These plants will not do any length of time in a room; the proper place for them is a pit or frame, from which the lights can be removed at all times, except during frost or rain. It is very mild here; *Hydrangeas*, *Fuchsias*, *Calceolarias*, *Auriculas*, *Veronicas*, *Mignonne*, late *Chrysanthemums*, &c., are in full bloom out in the open garden. I wonder this unsurpassed seaside place is not full to overflowing; it is the only place the Americans envy us in England. —B. Hook, *Torquay*. [A very handsome plant.—Ed.]

Azalea Mrs. Carmichael.—Among forced winter flowers at the Victoria Nurseries, Upper Holloway, the hybrid varieties of *Azalea* raised by Mr. Carmichael, formerly of Sandringham, are conspicuous, owing to the profusion with which their flowers are produced and their pure delicate tints. One variety was particularly attractive—that bearing the name of Mrs. Carmichael, the flowers of which are of medium size, borne profusely on every twig, and of a clear pale magenta hue, forming a charming contrast to its associates. It is a cross between *A. amœna* and one of the larger flowered kinds, as, indeed, are all of Mr. Carmichael's hybrids, we believe; they are therefore particularly well adapted for forcing into flower early, as they require but little heat. The names of the other varieties are *Lady Musgrave*, *Princess Maude*, *William Carmichael*, *Prime Minister*, and *Princess Beatrice*. These vary chiefly in the size and shade of colour of their flowers, but there is a family likeness apparent in all of them which indicates their parentage.

Blandfordia Cunninghami hybrida.—The *Blandfordias*, notwithstanding their great beauty, do not seem to be favourites with cultivators. They, however, possess much to recommend them, for the flowers of all of them are extremely beautiful and especially adapted for cutting, and the culture of the plants is by no means difficult, inasmuch as they may be grown to perfection in any greenhouse, and this, together with the fact that they flower freely in midwinter, ought to be sufficient to commend them to the attention of every plant lover. *B. Cunninghami* is one of the most beautiful of the genus, and not less so is the hybrid variety of it, which is now finely in flower in Messrs. Henderson's nursery, Maida Vale, where there is the finest collection we know of. The erect flower-stems rise about 1 ft. above the long grassy foliage, and are terminated by a dense umbel of drooping bell-like flowers which are red, margined with clear yellow. The flowers remain a considerable time in perfection, especially if the plants are placed in a cool and dry atmosphere.

Strelitzia ovata.—Of this gorgeous South African plant we saw a fine specimen in flower in one of the Orchid houses at Silverdale Lodge, Sydenham. The bright orange colour of the pointed erect bracts is in striking contrast to the deep bluish-purple of the tongue-like petals in the front, and quite as attractive and interesting as any of the surrounding Orchids. It is a favourite plant with Mr. Cobb, who pays some attention to its culture. It is growing in a rather small pot compared with the size of the plant, and is placed in a house having an intermediate temperature.

Nematanthus longipes.—This is a Gesneraceous plant, the flowers of which somewhat resemble those of an *Æschynanthus*, though abundantly distinct in habit of growth. It has erect stems about 18 in. high, furnished with thick, fleshy, oblong leaves of a deep green. The flowers are tubular, about 2 in. long, and $\frac{3}{4}$ in. wide at the mouth; the sides are flattened, and the segments of the tube suddenly reflex, thus giving the flower a singular appearance. The colour of the blossoms is bright red, and as they are suspended on thread-like stalks some 3 in. long from the axils of the leaves, they are highly attractive. There is a plant of it now in flower in one of the compartments of the **T** range at Kew.

Camellias at Upper Holloway.—Everywhere *Camellias* promise to make a good display this season, but nowhere have we seen such a remarkably fine show of buds as in the spacious *Camellia* houses in Mr. B. S. Williams' Nursery at Holloway, where there are

some fine specimen plants. On many of these the blooms are already expanded, but in the course of a month or six weeks the majority will be open, and then the collection will be well worth a visit. All the finest of the older varieties are represented besides the new kinds, which include the beautiful sorts raised and sent to this country by Mr. C. M. Hovey, of Boston, U.S.A.

Lamprococcus Weilbachi.—This is a strikingly showy *Bromeliad*, nearly allied to the *Billbergias*, and much resembling some of the dwarfer-growing kinds of that genus in habit of growth and mode of flowering. The leaves are arranged in a pitcher-like manner, and from the cavity the stout erect flower-spike is produced, terminated by a long head of flowers of a deep purple colour, making a fine contrast with the scarlet bracts and stem. It is now in flower in Mr. B. S. Williams' nursery at Holloway, where it is grown in a moist stove.

Narcissus monophyllus Clusi.—I am happy to be able to report that I have again been successful in flowering this interesting plant. In a pot containing ten bulbs, five have flowered. In another pot of four bulbs, the whole have flower-stems, two of the bulbs showing twin blossoms. The culture was the same as before, as stated in *THE GARDEN* for January, 1880.—JOHN FERME, *Had-dington*.

Acacia dealbata.—We have at Golder's Hill, Hampstead, a fine specimen of this shrub. It has a clean stem which measures 14 ft. 6½ in. round, and the plant covers the roof of a conservatory 24 ft. in length and 9 ft. in height. It is now in full bloom. It is planted out, in rather heavy soil, its roots extending under the path outside. In autumn it is liberally supplied with water, and after it has done blooming it is pruned to about half its length, as we find that it blooms well on the young growth. The temperature of the house in which it is growing is about 50° by day and 45° at night. This plant rarely ripens seed with us, the pods usually dropping off before they arrive at maturity. Two years ago we were, however, fortunate enough to get a few good seeds, which were sown in a brisk heat. They germinated rather sparingly. Those which came up were potted in good sandy loam and leaf-mould, and are now in 6-in. pots, with leaders about 4 ft. high. They must, I believe, be of good age before they bloom well.—R. SELMAN. [The flowering sprays sent were very fine indeed, and the colour remarkably bright.—Ed.]

Gishurstine.—The inventor of the well-known Gishurst insecticide has recently invented a new compound in the form of dubbing for boots which is specially intended for the use of gardeners who are necessarily much exposed to all kinds of weather. We have given the sample sent by the manufacturers, Price's Candle Company, a fair trial, and find that it effectually repels moisture, thus keeping the feet perfectly dry and warm. Unlike ordinary dubbing, it is free from smell, and the boots, if necessary, may be polished immediately after its application. Its cheapness will place it within the reach of everyone, and it will be found a boon not to gardeners alone, but to all whose occupations necessitate exposure, such as gamekeepers, woodmen, and shooting, fishing, and other sportsmen.

Fine Poinsettia pulcherrima.—I saw in Mr. Middleton's garden, at Bradford Peverill, the other day some fine plants of this, with whorls of bracts or floral leaves measuring 20 in. across. The plants, too, were unusually dwarf and well grown, the leaves covering half the pot.—A. C.

A Good Table Swede.—Those who think the Swede the best of eating Turnips would be more fully confirmed in their ideas on the subject by a trial of Laing's Swede. Mr. David Syme, of the Lawson Seed Company, has kindly sent us a sample of this with a character which, after testing, we can fully confirm. Mr. Syme says this Turnip is distinct from all others in foliage. It is a better Turnip than any we can now get in Covent Garden.

Amaryllis (Hippeastrum) Hendersoni.—This noble flowering bulbous plant is now attractive in the nursery at Pine-apple Place, where it had its origin. The flowers, which are as large as those of any of the race to which it belongs, are of a greenish-white, and heavily stained with deep crimson.

Ixora Fraseri.—In Mr. Middleton's garden at Bradford Peverill I saw the other day a plant of this in an 8-in. pot with twenty-seven trusses of bloom on it, a fact which shows that this *Ixora* is an excellent one for winter blooming.—A. C.

Fine Chinese Primulas.—I noticed in Mr. Middleton's garden, at Bradford Peverill, some fine plants of these in full bloom. They measured 2 ft. across and were in 8-in. pots.—A. C.

WE omitted to state last week that our plate of the *Pæonies* was drawn by Mrs. Duffield from flowers obtained from Mr. Robert Parker's collection, which is a good and well-grown one.

A Death in the Family.—We hear that the little paper known as the *Horticultural Record* is no more.

RANSOMES, SIMS, & HEAD, Ipswich, have changed the name of the firm to Ransomes, Head, & Jefferies.

THE LIBRARY.

GOD'S ACRE BEAUTIFUL:

OR, THE CEMETERIES OF THE FUTURE.

London: THE GARDEN Office. New York: Scribner & Welford.

WE give without comment illustrations from this work, with extracts relating to the public gardening aspect of the question:—

By the adoption of urn-burial all that relates to the artistic embellishment of a cemetery would be at once placed on a very different footing. One of the larger burial grounds now closed, perforce in a

be not unworthy of such places. The knowledge that our cemeteries would be sacred—would be sacred to all, and jealously preserved by all, through the coming generations—would effect much in this new field for artistic effort. In days when careful attention is bestowed upon the designs of trifling details of our houses it is to be hoped that we shall soon be ashamed of the present state of what should be the beautiful and unpolluted rest-garden of all that remains of those whom we have known, or loved, or honoured in life, or heard of in death as having lived not unworthy of their kind.

In endeavouring now to obtain any good effects, defeat is certain through the essential conditions of the present mode of burial. With urn-burial everything we can desire for the artist is not only possible, but easily attained. Soft, green, undisturbed lawns;

stately and beautiful trees in many forms; ground undisturbed, except in certain small parts; a background of surrounding groves; no hideous vistas of crowded stones; and the certainty that the monumental work done may remain permanently. The expense which is now spread over a variety of graves, headstones, and the purchase of ground would, intelligently applied, build a tomb which might endure for ages. To make it beautiful and enduring as man and stone could would be an aim not unworthy of an artist. A single burial in such an urn-tomb need not be so expensive as one in the commonest of the graves with which such large areas in our cities are now covered. The disturbance of the ground would not be necessary, as it is now, not to speak of the abolition of other onerous charges.

Cemeteries Beautiful and Permanent Public Gardens.—Apart from the question of art is the important consideration of the great advantages the improved system would give us in adding natural beauty to the gardens of the dead, and improving many large open spaces in our cities of all sizes. Given a space equal to one of our largest London cemeteries, or one of those in America several hundred acres in extent, we may begin to outline what the cemetery of the future may easily be made. Permanent and inviolable it must be. The cemetery of the future not only prevents the need of occupying large areas of ground with decaying bodies in a ratio increasing with the population and with time, but leaves ample space to spare for those open green lawns, without which no good natural effect is possible in such places. It is to be a national garden in the best sense; safe from violation as the *via sacra*, and having the added charms of pure air, trees, Grass, and flowers. The open central lawns should always be preserved from the follies of the geometrical and stone gardeners, so as to secure freedom of view and air, and a resting-place for the eye.

Buildings.—Approaching the boundary, but not quite near it, should be erected a covered way, as strong and lasting as rock. This is to form a series of urn-receptacles on its inner side, well but simply designed with the best architectural skill obtainable. This alone, in the case of a large place, could easily be arranged to afford space for burials for ages. All other tombs and buildings of whatever kind should be confined to a belt of the ground within and near the covered way, and, with their accompanying groves, should not occupy more than a fourth of the whole space. The covered way should not be the work of one man or period, and this being so, it would be well to separate its divisions by planting or otherwise—the division occurring, if possible, in places commanding views of the surrounding country.

We are now considering a cemetery of the largest size and first importance—a national or metropolitan one. Several reasons determine that the covered way and main buildings shall not be on the extreme boundary; namely, to have them in as quiet a position as possible, as safe from injury on their outer as on their inner sides: to secure freedom from any kind of nuisance which might arise from the buildings being placed too near property over which the governing body of the cemetery had no control; also to allow of the buildings being screened from the surrounding neighbourhood



A Cemetery of the Future. With Temples and Tombs towards boundary, the centre permanently open for Grass and planting. Designed by W. Robinson, drawn by Alfred Parsons.

less time than that of an ordinary life, would accommodate a like number of burials on an improved system for many ages. The neglect and desecration of the resting-place of the dead inherent to the present system would give place to unremitting and loving care, for the simple reason that each living generation would be as much interested in the preservation of the cemetery as those that had gone before were at any previous time in its history. We should at once have what is so much to be desired for artistic and other points of view—a permanent resting-place for our dead. With this would come the certainty that any memorials erected to their memory would be carefully preserved in the coming years, and free from the sacrilege and neglect so often seen; hence an incentive to art which might

by tall trees, on any side where the views were not such as would add to the landscape beauty of the place. Thus it would be possible to control the views not only from the centre to the covered way and tombs, and *vice versa*, but also beyond them, and to secure freedom from any objectionable sights or sounds.

The actual Boundary would be secured in a more ordinary, but effectual manner. There being ample space within and without the great covered way and accompanying tombs for much noble tree-planting, the larger trees need not be planted near tombs, as there have been many instances of the disturbance of these by their roots. The buildings should be near and between groves of evergreens, and the dwarfier-flowering, weeping, or columnar trees. These would partly conceal and soften them, as seen from the central parts. A main walk passes by these groves and the monuments, and it should be the principal, and if possible the only, road in the place. A beautiful church or classic temple, such as that at Munich, might form the entrance; this and all other structures being built subject to the approval of a group of artists and architects who would see that their design and workmanship were not unworthy of the spot.

Sylvan and Floral Beauty of the Cemetery.—The sylvan charms of such a spot might be greater than is usually obtained in public gardens. The protecting architectural wall is far enough from the boundary to allow of groves of Oak and other hardy native trees being planted outside it; these groves to have Grass and wild and naturalised flowers beneath and between them. The interior groves and gardens might be the home of all the beautiful green things that grow in our climate. The main portion of the surface being always free for such ends, we should soon have a beautiful tree-garden which might even be of great public use. As some might desire to enrich the place with useful buildings, so others might claim to plant memorial trees or groups where the opportunity existed. The views should be numerous and carefully considered. The planting should be wholly natural, in the best sense of the word. The outer portion, with its bordering tombs, columbaria, architectural covered way, and churches, should contain all the purely artistic adornments of the place; while the central portions should be quite free from the drill-master manner of marshalling plants, and sundry like effects of a too prevalent style of gardening.

The Cemetery Winter Garden.—However all-sufficient the sylvan charms of the place might be, a desirable structure, in a bad climate like ours, would be the winter garden, in which religious or burial ceremonies could take place at inclement seasons—in an agreeable temperature, and in the midst of a variety of beautiful living things. Few would object to this plan were it not from the objectionable way in which such structures are generally designed, the too frequent idea being that a glass shed more or less vast is the best plan. But the Palm house in the Edinburgh Botanic Garden, and a variety of structures used as winter gardens in Continental cities, prove that vegetation thrives in buildings with stately and solid walls. Far more beautiful effects are obtained in such, from the contrast of the graceful forms of Palms and other fine plants with noble building, than in the ordinary way. The temperature necessary to keep plants from temperate climes in health would be also that which would make it agreeable to people assisting at ceremonies, for which, of course, its most important spaces should be reserved.

Improvement in Planting Old Graveyards.—Apart from the question of improvement in burial, the present state of our rural cemeteries may be fittingly alluded to here. Possessing often considerable advantages as to site and soil, and associations that always seem to call for some care in adorning them with trees and flowers, they are often seen amidst our fairest landscapes as bare as a stoneyard, and, as regards vegetation, much less interesting than the hedgerows by which they are surrounded. The church garden, even if small, need never be arid or ugly. But if there were only the walls—so often hard and naked—they alone might form a garden. Fresh foliage and blossoms are not often seen to greater advantage than against the worn stones of our churches, often unadorned with even Ivy or Virginian creeper. Many of the best climbing Roses and other climbers may be grown well on these walls. The several sides of the church might each have the plants suitable to their shelter or position. The walls round graveyards might also offer a suitable position for numerous low-climbing plants and bushes. Tombs may be partially garlanded with trailers, Sweet Brier, or Honeysuckle, and all this without disturbance of the ground or stones. It is best to adorn or gracefully relieve, instead of obliterating, such objects. The ground is generally well adapted for trees, and even the turf itself may be converted into a garden of early flowers. Indeed, the graveyard might often be a tree garden, and one not without its uses. In planting it is essential not to hide the building from important points of view; too much care can hardly be paid to the views obtainable towards or from the site.

In cities and large towns trees often embellish the space round the churches to a much larger extent than in the rural districts, though the practice of planting evergreens in city churchyards is a foolish one in all ways, as they can only perish under our smog plague. In such cases the summer-clad trees only should be used. Our old city churchyards could all be easily converted into oases of trees. The not unusual way of levelling or removing the headstones and making the whole into a formal garden is not the best. There is no real need for any sacrilege of the kind. The trees that flourish in such places are those that require little preparation of the ground—weeping and other native trees. Much short-lived and formal flower gardening should be avoided, in consequence of the ceaseless care and cost it requires; the attention should mainly be devoted to the suitable hardy trees.

Near country seats urn-burial would lead to the family burial-place within the grounds—a quiet inclosed glade in some sunny spot, chosen for its beauty, embowered in a grove of evergreens, the Grass sprinkled with hardy native or naturalised flowers only—so as to prevent any frequent attention on the part of workmen. Such a spot, with its carpet of turf and walls of musical-leaved trees, wholly free from the long-lasting and many-staged horror of decomposition, which makes the ordinary churchyard so far from inviting to many persons, would form a fitting place of meditation for the living as well as of repose for the ashes of the dead.

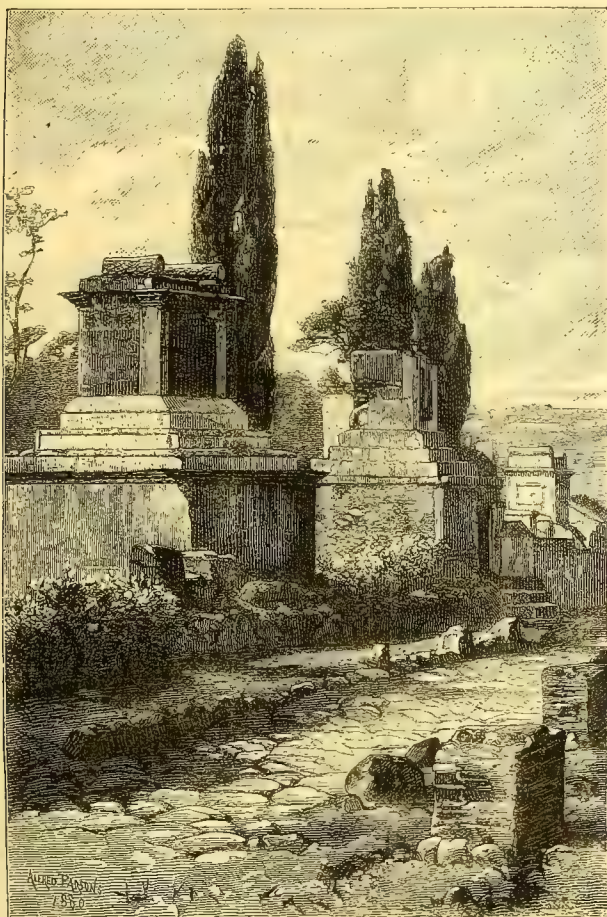
Country Cemeteries.—The drawbacks of various kinds known to exist in connection with large urban cemeteries are often supposed not to exist in the case of rural ones; but, unhappily, they are sometimes in quite as bad a state as those in cities. Overcrowding is far from uncommon in country districts, but here there is less chance of the wholesale removals before mentioned. Some years ago, however, when certain changes in the church required the raising of a number of bodies in the churchyard at Cobham, in Surrey, the work of the navvies was of the most horrible and dangerous character, and was accomplished with difficulty in the early mornings, partly under the influence of repeated doses of gin administered to the men. Such removals are not uncommon, but they are performed as secretly as possible, for fear of raising opposition. In many quiet country places there is as great need to close the graveyard as ever existed in large ones, and sometimes greater danger, owing to imperfect drainage. In such cases any improvements or changes are extremely difficult to carry out, owing to the state of the ground. The same plan already spoken of in connection with great urban or national cemeteries would be proportionately no less advantageous, on a small scale, for country towns and villages. Danger to the living; pollution of earth or water; overcrowding; decay of memorials through exposure; hideous ugliness of stone, telling of accumulated horrors beneath the turf—all these and many other evils should be avoided in country as in town, while the various advantages of the improved system would be as precious in one case as in the other. The church and its vaults, and other unused spaces, and a covered way, replacing the whole or a portion of the usual fence, would in most cases suffice for ages for urn-burial, leaving the whole of the churchyard itself free, as a beautifully planted spot. Urns placed under memorial windows, and in various positions on the walls, would invite monumental work of the highest class. The sentiment that people's ashes might repose in the church where they worshipped during life would not be interfered with in this case, whereas, frequently in rural districts nowadays, the present system often compels the formation of a new graveyard away from the church.

Winter-flowering Pelargoniums.—In order to obtain an abundance of brilliantly-flowered Pelargoniums during the dull days of winter the main point is to grow the plants in full exposure out of doors in summer, so as to get the wood thoroughly ripened by the end of September, when they should be taken indoors, and to husband the strength of the plant by picking off all blooms as they appear. The plants should be well rooted before they are taken into the house—in fact, pot-bound plants are better than newly-potted ones, as they are easily stimulated at the root by manure water. We have a quantity now in full bloom that were employed for conservatory decoration last summer; as they ceased flowering they were divested of all remaining blooms and buds, set in a sunny position out of doors, and kept dry at the root. They have produced abundance of blooms in a house kept at about 55°, and I find that the plants at this time of year retain their blossoms far longer for indoor decoration than in summer. If packed for travelling, a little liquid gum dropped in the centre of each flower will keep the petals from shaking off. Varieties of which *Vesuvius* is a type are the best for winter flowering.—J. G. L.

TREES, SHRUBS, AND WOODLANDS.

FLOWERING SHRUBS.

THERE are so many beautiful flowering shrubs and small trees in cultivation equally hardy and so little more expensive than the commonest kinds, that it might have been supposed everyone possessing a garden would have them; and yet how many gardens are to be found where they are absent? There is the constant repetition of common Rhododendrons, Azaleas, Lilacs, Laurustinus, Laburnum, Guelder Rose, Thorns, Ribes, Berberis Aquifolium, and a few others, which often comprise most that are grown where a great deal of additional beauty and variety might exist. Not that some of the old, long-known plants are not still, and always will be, deserving a place, but this is very different from the exclusion of others equally deserv-



A Cemetery of the Past. By the Sacred Way at Pompeii; Tombs used for urn burial. Present aspect. The Cypress trees have grown on the spot since the town was uncovered. (See p. 35.)

ing. To begin with Rhododendrons. A score of years ago the fine hybrids were high-priced, (but now they may be had in almost endless variety of colour and shade at a tithe of what they used to cost. They have every thing to recommend them—the massive beauty of their flowers is unsurpassed in the whole range of outdoor plants, added to which there is no difficulty now in selecting varieties that have foliage equal in appearance and hardness to a Laurel. Azalea amœna is quite hardy in many parts of the kingdom, and yet in not one garden in a score is it to be found, except treated as a pot plant. The hardy Heaths and their Irish allies, the Menziesias, will thrive in any fairly favourable situation, and deserve prepared soil where such is needful; when massed they make quite a feature in a garden. The Andromedas are seldom met with so fully represented as they deserve; for, where compact, healthy-looking plants of dwarf growth are required, they have the merit of doing double duty with both pretty flowers and foliage. Kalmias will grow in some parts of the kingdom that they do not flower freely in, but where they will bloom they should be extensively planted, for their wax-like flowers are beautiful, and their

stout, pretty foliage is equally distinct. *Cistus ladaniferus* (the Gum Cistus). Old as this distinct and beautiful flowering shrub is, there are many gardens where it does not find a place. Barberries are seldom seen represented as they deserve to be; especially such kinds as *B. Fortunei*, *B. japonica*, *B. Darwini*, and *B. stenophylla*, the last equal to any, if not the prettiest of all. *Buddleia globosa*, although not quite hardy in many places, is still worth having, even if it is sometimes cut down by very severe frosts, and there is generally a favourable warm corner in every garden that can be found for it, and a few others of a like nature. The dwarf, compact-growing *Daphne Cneorum*, with its flowers as sweet as the tender Chinese species, will not do everywhere, but in many places where it would it is not present.

Deciduous Flowering Shrubs and Small Trees.

Amongst these the deficiency of many fine species and varieties in the majority of gardens is still more apparent. The old Guelder Rose is everywhere, but the beautiful free-flowering species, *Viburnum plicatum*, is slow to have its claims acknowledged by being grown more generally. The disposition of this plant to bloom profusely whilst quite small is not the least merit it possesses. Favourites as the old kinds of Lilac are, such fine sorts as *Dr. Lindley*, *Charles X.*, *alba grandiflora* and several others of the newer kinds are decidedly in advance. Amongst the *Spiræas* are many not so often met with as they deserve. *Halesia tetraptera*, the Snowdrop tree, is such a distinct plant that it needs no recommendation. Amongst other shrubs, odd plants here and there of *Ribes sanguineum*, the Red-flowered Currant, always assert their presence when in bloom; but a group of the different colours—red, deep red, white, and yellow—all together show each other off to much better advantage than any number of single plants will do. *Prunus alba fl.-pl.* and *P. rosea fl.-pl.*, the double Chinese Plums, are alike beautiful and suitable for either small or large grounds. So are both the single and double Peaches, which are more generally planted than the double-blossomed Cherries; the latter, when in flower, possess a beauty distinct from everything else. A single plant of *Cydonia japonica* on a wall, or grown as a bush, is always a telling object during the long time it remains in flower; but when the different colours—white, rose, and red—are each represented, like the *Ribes* already spoken of, each are improved by the presence of the other. The only drawback there is in growing these beautiful early flowering shrubs in the open shrubbery is that their flowers are not so much sheltered as on a wall, and consequently are more likely to get disfigured by frost. The white *Daphne Mezereum*, though not pure white in colour, so far improves the appearance of the red variety, that both should go together. *Hydrangea japonica paniculata* is such a gem, literally covering the branches with its flowers, that it might be expected to be in every garden; yet it also is slow in making its way. Thorns of various colours, double and single, are known everywhere, but those who have not got Paul's Double Crimson are undoubtedly deficient of the best. If there is any more beautiful and effective deciduous flowering plant than this Thorn, I should point to *Pyrus Malus floribunda* as the one. Wherever there is room to grow half a dozen kinds of shrubs, this *Pyrus* should be included in the number; its branches are literally wreaths of blossoms. Of the *Deutzias*, *D. scabra* and *D. crenata* have their merits acknowledged by often finding a place, but *D. gracilis* is much more frequently used as a forced pot plant than out of doors. Yet, when it has had time to grow to a good-sized bush, it is one of the most beautiful objects imaginable, blooming after many shrubs are over. In the latter part of summer we have not many flowering shrubs, but in the different kinds of *Hibiscus*, double and single, there is scarcely anything more telling. Yet so meagrely are they represented in most gardens, if not altogether absent, that they might be looked upon as expensive varieties, or difficult to grow, in place of which they cost little and will thrive almost anywhere. A group comprising the single and double varieties, in their different colours, is almost as bright and cheerful-looking in August and September as anything we get in spring.

T. BAINES.

Berry-bearing Shrubs in North Norfolk.—We have here, as in many other parts of England, a scarcity of Holly berries this year, a remark which also applies to Hawthorns, Laurels, and common Yews, but the Irish Yews are loaded with bright scarlet berries; indeed, some of the plants are quite beautiful with their bright load of fruit.—EDWARD SENDALL, *Barningham Hall*.

The Best Places for *Leycesteria formosa*.—These are sheltered, rather open places in shrubberies or home woods. Some years ago this pretty and graceful plant was much extolled for cover. It was said that pheasants eat the largish bracts or berries. But it never seems to have made much progress as a plant for cover, though where it does it affords abundant shelter alike for fur and feather. On good soils it forms huge masses, 5 ft. or

more high and through, and the long pendent branches, with their drooping clusters of bracts on their ends, are very showy and graceful. It thrives best on good soils enriched with rotten leaves and resting on rather a moist base. The sprays are useful for cutting for the furnishing of large vases or baskets.—D. T. FISH.

Moving Hollies in April.—I can confirm the statement of "J. C. B. that Hollies can be moved in April "with perfect safety." I planted 300 last year (1880), every one of which has grown, and they now look strong and healthy. The weather was dry, with parching north-east winds after they were planted.—J. M.

THE FLOWER GARDEN.

THE BEST MICHAELMAS DAISIES.

SELECTING the best from the long list of perennial Asters, or Michaelmas Daisies, as they are called, is no easy task for those unacquainted with them. As a rule, they are a somewhat despised class of plants, simply because the commonest possess a somewhat dingy appearance; such, for example, as the old *A. dumosus*, may be seen in almost every cottage garden, and one or two others which have small flowers of no decided colour. There are, however, some really beautiful Michaelmas Daisies, but it is only within the past few years that they have become generally grown. Three distinct types of Aster may be readily distinguished by their habit of growth; first, there is the alpine or dwarf-growing kinds, from 6 in. to 3 ft. in height, such as *A. alpinus*; then the tall-growing kinds, varying in height from 3 ft. to 9 ft. in height; and lastly, those with spreading slender stems, such as *A. turbinellus*, *patens*, &c. A representative selection should include some of each of these sections; therefore, of the dwarf kinds, we would recommend *A. alpinus*, a handsome sort, about 9 in. high, which produces large purple-blue flowers during summer, and which is excellent for rockwork. *A. Amellus* is also one of the most beautiful of hardy perennials; it grows about 2 ft. high and produces a profusion of bright purple blossoms. There is also a white-flowered variety of



Aster turbinellus.

it, named *bessarabicus*, which is even much finer than the type, but a little taller in growth. *A. longifolius* var. *formosus*, called also *minor* and *minimus*, is an extremely fine plant, remarkable for the profusion with which its heads of deep rosy-pink flowers

are produced on stems about 2 ft. high. The Pyrenean Starwort (*A. pyrenæus*), though not so showy as the ast, is a desirable early autumn-flowering plant; it grows about 2 ft. high, and bears large heads of lilac-blue flowers. *A. Reevesi* is a pretty little variety,



Flowering Spray of *Aster ericoides* (reduced).

with slender stems laden in early autumn with tiny white flowers. *A. cordifolius*, *A. Lindleyanus*, and the *Galatella* section, *A. dracunculoides*, *linifolius*, may be added to the dwarf-growing kinds, as well as *A. sericeus*, a remarkably distinct and pretty kind, and so is *A. versicolor*, a dwarf sort, with flowers an inch across, changing as they grow older from white to mauve.

The kinds with a spreading habit of growth are extremely graceful, and ought to be in every garden, as the slender sprays are specially useful for cutting purposes, in which state they last a long time in perfection. There are not many, the best being *A. turbinellus*, a sort with large mauve flowers; *A. patens*, with a similar spreading growth, but smaller flowers; *A. laxis*, a fine species, with pale purplish flowers produced freely early in autumn. The tallest growing kinds are very numerous, and most of them possess a striking similarity in habit of growth and flowers. The most distinct are the largest kinds—*A. Novæ Angliæ* and its varieties *roseus*, *pulchellus*, and *A. Novi Belgii*, all of which are well worthy of culture, as they produce a fine effect planted in back rows of borders; *A. Chapmani*, *A. Drummondii*, *A. puniceus*, and *A. Shortii*, all about 5 ft. high, should also be included in a selection as well as those which bear doubtfully authoritative names, such as *A. purpuratus*, *A. amethystinus*, *A. elegantissimus*, and *A. multiflorus*, which may be found in trade lists, and not omitting the elegant little *A. ericoides*, with its graceful growth, which, with the two other kinds represented in the accompanying woodcuts, are among the best for cutting purposes, as their slender sprays associate well with any kind of flower. This list might, of course, be extended to greater length, but the selection just made, all of which we saw in Mr. Parker's nursery at Tooting, includes the majority of such kinds as are easily procurable and may be grown in any garden soil of good depth. W. G.

Blazing Stars (Liatris).—The genus *Liatris* contains several of the most beautiful of American wild flowers. There are about twenty species, one-half of this number being natives of the Northern and the remainder of the Southern States. We (*American Agriculturist*) have had thirteen species under cultivation at different times, but none more showy than *L. Chapmani* and *L.*

punctata. The former grows to a height of 2 ft. or 3 ft., forming a spike of beautiful pinkish-purple flowers 2 ft. long. The flower-stem is slender and graceful, and there is a neat and handsome look about the whole plant which at once attracts the lover of beautiful flowers. There is, however, one drawback to its cultivation which may discourage some from attempting to grow it in the Northern States: it is not hardy enough to withstand our winters. The roots, like most species of *Liatris*, are tuberous, and before freezing weather sets in they may be lifted and stored perfectly well in dry leaf-mould in the cellar. *L. Chapmani* is only found, as far as we are aware, in Florida. The other species, *L. punctata*, is found in Arkansas and Texas, and is so called from its punctate or dotted leaves. The root is tuberous and considerably larger than in *L. Chapmani*, the leaves are long and narrow, very stiff, and sharp pointed. The stems grow to a height of 2 ft. to 3 ft., and the flowering portion is often $1\frac{1}{2}$ ft. in length, densely covered with beautiful reddish-purple flowers. These flowers open about the middle of



Aster Amellus (natural size).

September and last until the middle of November, the frost having no effect upon them. This species, though a native of Texas, withstands the severest winters without protection. Among other kinds of *Liatris* which are worthy of cultivation is *L. spicata*, the earliest flowering species, blooming in July and producing short, very dense spikes of purple flowers; this is followed soon after by *L. pycnostachya*, which grows in rich soil to a height of 5 ft. to 6 ft., and has a flower-spike 4 ft. to 5 ft. long. Following these are *L. cylindracea*, *L. graminifolia*, and *L. scariosa*, the last a quite common kind, the flower cluster of which appears in the form of buttons, whence it is often called Button Snakeroot; then last, the dwarf and very showy *L. elegans*. This grows to a height of about 18 in., the flowers first being of a dark purple, finally changing to white.

New Zealand Forget-me-nots.—One of the Mountain Forget-me-nots mentioned in the account of New Zealand plants (Vol. XVIII., p. 662), *Exarrhena Lyalli*, promises to be hardy in the south of Ireland, though this being its first winter in Ireland, it has been partially covered with glass on the rockery, which very likely is unnecessary. Mr. Anderson-Henry, who introduced this flower from New Zealand, and who gave me a plant, says that it likes protection in Scotland. Its blossom is like a large white Forget-me-not, and the leaves somewhat resemble those of *Myosotis dissitiflora*, but they are of thicker texture and slightly covered with down.—C. M. OWEN, *Gorey*.

IMPROVED MIMULUSES.

OF all easily and quickly grown flowers of a hardy annual character none are more worthy of attention than *Mimulus*. Like other very hardy flowers, they have been vastly improved on lately, and the massive, strikingly coloured flowers which anyone can secure from a well-selected packet of seed is surprising. Most people know the shape of the flowers, but none can imagine the beauty of their markings without seeing them. The only thing with which I can compare them is a choice selection of herbaceous *Calceolarias*, but while few can succeed in growing the *Calceolaria* to perfection, the *Mimulus* attains that state with little or no care, and in the most common garden. Named varieties are sold, but I prefer to buy a packet of seed from which plants of all colours are obtained, and these will continue to intercross themselves into a great variety of markings for years afterwards.

Seed should be procured now, and it may either be sown in a pot or box and placed in a cold frame in February or March, or it may be sown in the open ground in April. In any case all the plants will grow large and bloom before the autumn. When sown in a pot the plants should be planted out as soon as they are large enough to handle, and when the seed is sown in the open ground the produce may be treated in the same way. A soil not too light, but moderately rich suits them best; and as to situation, they have much to recommend them, as no spot suits them better than a partially shaded one, such as under trees or facing the north with a wall or hedge behind. At the same time they do well in sunny places too, and in these respects they are most accommodating. A good patch of them here and there in mixed borders is very pleasing, and they are the same when planted about shrubberies or indeed anywhere. When once the roots are in the ground they will take care of themselves for years, and at the same time they will never fail to flower most profusely every summer. We know of one garden, with not an over large stock, where *Mimulus* flowers may be found from April until September.

CAMBRIAN.

ENGLISH V. TROPICAL FLOWERS.

THE following passage in "The Gardens of the Sun" is of especial interest with regard to the culture of hardy plants, so strongly advocated in THE GARDEN. Mr. Burbidge's knowledge of tropical plants as seen to the greatest advantage in their own homes gives additional weight to his opinion as to the beauty of plants belonging to temperate climates: "A lover of Nature who sees a tropical country for the first time cannot help but enjoy the bright light and heat, the vegetable glories of flower, fruit, and leaf called forth by the rain and sunshine, of a clime where winter is unknown, and yet, with all the sunshine and showers, the tropical blossoms are in a way aristocratic and exclusive, and never mingle socially in bosky masses, as do our own wildings; and it is not possible to name half-a-dozen of them that could at all compare with the Bluebells or Heather, the Buttercups, Primroses, Forget-me-nots, Anemones, Violets, and rosy *Lychnis* of our own cool, moist woods and pastures. During a year's rambles in one of the richest and most fertile of tropical islands I saw nothing really fresh and spring-like; nothing like the 'green and gold' of Daffodils and the tender young Grass of April, or the royal glory of a summer Iris, or an autumnal *Crocus* on its mossy bed. This much is ever lacking in the forest primeval, and ever in gardens—eastern gardens, beautiful as they are in many ways, the sameness, the cloying degree of permanency observable in the forests become intensified, and so still more unsatisfying. The plants seem always to present the same aspect; and although most of them are at their best when revived by the rains just after the dry season, yet the charm of freshness is destroyed by the number of evergreens everywhere, and the dribblets of bloom kept up by them nearly all the year round. . . . Indeed, there is no gain-saying the fact, as has been pointed out by Wallace and others, that the most lovely and satisfying, the most sociable of all flowers, are those of temperate climates."

C. M. O.

Gorey, Ireland.

Herbaceous and Shrubby Borders.—The season is now at hand when herbaceous and shrubby borders generally get maltreated and broken up either by fork or spade, which should never be allowed, for, besides the risk of disturbing and mutilating bulbs, roots get injured by the digging. The fallen leaves of the plants and other vegetable matter are, or ought to be, laying and rotting, and the fibres, ever ready for fresh food and always travelling instinctively in the right direction to find it, thread their course where it is deposited for their use. Nature, in the ordinary way, provides nutrition for the plants annually, but we, with our ideas of tidiness, rob them by raking up and gathering all accumulation of decaying matter, by doing which greatly impoverishes the soil, and then wonder why our pets do not thrive

in the free manner they ought. Not only are leaves beneath shrubs highly beneficial on account of the manurial matter they contain, but they answer the double purpose of a mulching, and thus prevent evaporation of the earth's moisture which is a most important matter, although one too frequently overlooked. If proof were wanted of their great utility in this latter respect, one has only to examine the ground under them to see how damp it is at all times compared with that exposed to the air, which in summer, when heated by the sun, drinks up all aqueous matter at a great rate. What suits herbaceous and shrubby borders far better than the digging or pointing over they receive is a top-dressing of rich mould or a mixture of that and short decomposed manure, which if put on at once will be a protection to many of the plants whose roots will get the benefit of the juices carried down by the rains. For such things as Anthuriums, Pentstemons, Hollyhocks, and others of that character that suffer and often get killed by hard frost it is a good plan to place a shovelful of leaf-soil around the collars of each, which will prevent them taking harm should the weather set in severe.—S. D.

THE RED HAWKWEED.

(BOERKHAUSIA RUBRA.)

THERE are such vast numbers of Composites with yellow flowers, that it is a relief to find one possessing a different colour, and in this Hawkweed, a hardy Italian annual, we have one. Though called red, the blossoms are in reality not so, but rather rosy-pink. It



The Red Hawkweed (*Boerhausia rubra*).

should be sown in spring, like other hardy annuals, in any ordinary garden soil, and will produce flowers from June to September. The annexed woodcut well represents the habit of growth of this plant and the style of flowers, which are about the size of a crown-piece. The yellow Hawkweed (*Tolpis barbata*), also a South European plant, is likewise a pretty annual, equally hardy and pretty. The flowers are a bright, clear yellow, with a few blackish spots, which gives them a distinct appearance from other yellow kinds. W. G.

Chrysanthemums for Flowers and Exhibition.—In "J. S. W.'s" remarks upon this subject (Vol. XVIII., p. 630) pointed allusion is made to the flowers which I exhibited at a show held at Southampton, and your correspondent seems to write in disparagement of the system of cultivation which only produces from four to nine flowers on a plant. From my point of view the material difference lies in the superior quality of the flowers produced by exhibitors as compared with those that are grown on the old-fashioned bush system. Of course no one has a right to complain of any cultivator growing plants in a way that answers his purpose best, but when he writes in disparagement of his neighbour's system without apparently fully understanding it, I think it is going rather too far. "J. S. W." assumes that the terminal flower on each stem is almost invariably the largest and finest, which is not correct. It may interest your correspondent to learn that it takes an ordinary cultivator from five to seven years to master the peculiarities and characteristics of a good collection of Chrysanthemums, and to be able to select the "proper bud" upon which particular varieties succeed best. May I also suggest that the fairest way of instituting a com-

parison between the two systems of culture would be by bringing two groups of plants together, when the merits of both could be taken into account by disinterested judges? Nothing has so good an effect upon people of strong opinions as a comparison of their produce with that of their neighbours in public competition. Instead of the flowers grown on our system lasting only a few days, as "J. S. W." seems to think they do, I may say that our flowers were in good condition six weeks (I mean the same prize blooms); then there are the varieties that precede these, and the later kinds that succeed the exhibition plants. In all, we have Chrysanthemum blooms four months. I know of one society only that encourages spikes of Chrysanthemums (Pompones). This, I think, is sufficient to show that fine individual flowers are more in favour than those advocated by "J. S. W."—EDWIN MOLYNEUX, *Swanmore Park, Bishop's Waltham*.

A CHRISTMAS FLOWER GARDEN.

SUBJOINED is a list of garden and wild plants which were in flower in this part of Cornwall on Dec. 25 and 27, 1880. We have had very little frost—twice, I think, and then it only lasted for a few hours; lowest temperature 34°:—

Alyssum, white	Erica mediterranea	Pansies
Anthemis nobilis	Escallonia Ingrami	Papaver Rhæas
Antirrhinum	montivedensis	Pelargonium, zonal
Arabis albidia	macrantha	Pernettya speciosa
Aralia Sieboldi	Forget-me-not	Petasites fragrans
Arbutus magnifica	Fuchsias	Poa annua
Armeria maritima	Garrya elliptica	Polyanthuses
Aubrietia græca purpurea	Gazanias	Polygala Dalmatiana
Aucuba, male	Geranium Robertianum	Potentilla reptans
Auriculas	Glastonbury Thorn	Fragariastrum
Berberis Darwini	Groundsel	Primroses
vulgaris	Gunnera scabra	Primula vulgaris
Borage	Hawkweed	japonica
Brompton Stocks	Helleborus niger	Pyrethrum aureum
Calceolarias	Hemp Nettle	Ranunculus repens
Camellia, several sorts	Hydrangea	Rhododendrons
Campanula, blue	Iberis gibraltaria	Roses, several sorts
Carnations	Ixias	Salvia splendens
Cassia corymbosa	Lapageria rosea	Silene maritima
Ceanothus azureus	Laurustinus hirsutus	pendula
Chorozema macrophyllum	common	Snowdrops
Chrysanthemums	Lettuces	Sow Thistle
Clematis Jackmani	Lobelia	Spirea Thunbergi
Correa cardinalis	Lychnis diurna	Veronica polita
Cotoneaster microphylla	Marguerites	officinalis
Cuphea platycentra	Marigolds	Lindleyana, and several
Cytisus australis	Mignonette	other garden vars.
Daisies, double and single	Narcissus Tazetta floribundus	Viburnum plicatum
Desfontainea spinosa	Dock (Rumex viridis)	Vinca, blue
Erica carnea	ciliaris	Violets
gracilis	Nasturtium	Virginian Stock
	Pampas Grass	Wallflowers

9, Chapel Street, Penzance.

W. ROBERTS.

Lilium auratum in Ireland.—In THE GARDEN of December 25 Mr. F. W. Burbidge asks, "I wonder if any one can boast of a clump of *Lilium auratum*, the actual undisturbed produce of a bulb planted in the open air, say five years ago?" I am happy to say I have several splendid clumps of *Lilium auratum*, purchased seven or eight years ago, at Stevens' auction rooms—miserable little imported bulbs they were; very different from the large ones to be obtained there now. It is true they have, within the last two years, been disturbed, owing to alterations in my garden, but until the last two winters, and then not till much of the severe weather had passed, they received little or no protection. They are planted 3 in. or 4 in. deep in a mixture of loam, leaf-mould, sand, and bog-mould (peat being hard to obtain), on a limestone gravel subsoil. *Lilium speciosum*, which I bought at the same time, have never had any extra covering or care in the winter, nor do they seem to require it. This autumn I have planted many other kinds of Lily, being encouraged by the success of the above.—J. H. W. THOMAS, *Cannes*.

The Sensitive Brier.—This is not the real Sensitive Plant (*Mimosa pudica*), but closely related to it, and is known as the Sensitive Brier (*Schrankia uncinata*). Like the true Sensitive Plant, it has sensitive foliage. It is a perennial, found in sandy soil from Virginia southwards, and is a long trailing Vine with prickly stems and very fine handsome foliage. The flowers come from the base of the leaves and are in little balls about half an inch in diameter, of a pretty rose colour, and appear abundantly throughout the summer and autumn months. To those, says the *American Agriculturist*, who desire to grow this trailer, it is suggested that they try the method of giving it a spot raised above the general level where water will not settle around the root and cause it to rot. A "rockery" or rockwork is one of the least expensive methods of successfully growing many doubtfully hardy plants such as this is.

GARDEN THOUGHTS.

Walking about my house, musing upon mural plants, and as I remember how the more beautiful, but less substantial vestments have been discoloured and destroyed by cruel winters, inclining more and more to the conclusion that Ivy makes the best overcoat for a brick mansion in a midland shire, because it never wears out, and always looks well, my eye is attracted by bright objects within my home, and I find myself gazing through the glass as intently as a lean dog on a meat safe, or a poor schoolboy on a new revolver. Though I have no longer "a Rose looking in at the window," I have a most charming bouquet of Roses looking out of it, not Christmas Roses—albeit I received them on Christmas Eve, the prettiest and most welcome Christmas box I ever had, from my friend Mr. Henderson, of Thoresby—but the veritable flower of flowers. They are all perfect specimens of the lovely Tea-scented species, pure white, pale yellow, soft pink, chiefly Niphetos, emblematic of our winter snows, and *Souvenir d'un Ami* to remind me of the donor, who ought to be publicly decorated by Her Majesty the Queen of Flowers for this masterpiece of floricultural skill. Well does he deserve the cross of victory who here in cloudland and in drear December days creates a summer of his own, and makes his desert blossom as the Rose.

Mr. Henderson tells me that there is no special secret to be communicated nor difficult directions to be observed in the production of these beautiful Roses, but we must not forget that to an accomplished artist art seems always easy. "Last spring," he says, "when they had done good service through the winter the plants were plunged along the bottom of a back wall in a large late Vinery, the shoots untied, and, after the removal of dead and weakly wood, again secured to wires upon the wall. The shade of the Vines seems to do them no harm, and very little attention is required beyond the training and tying of the new growth. Being plunged in pots, they do not make so much wood as if planted out"—and for this reason probably have more and better Roses.

Looking through another window from the *jardin* to the *jardinière*, I see a charming combination of colour. In the centre of a circular stand a tree *Epiphyllum*, laden with roseate purple-crimson flowers, bends to meet the white Roman *Hyacinths* which surround it, and are themselves surrounded by *Violets*, and the pretty *Panicum* trailing its tricoloured Grass, green, pink, and silver, over the dark Moss which covers the pots, and drooping gracefully in accord with its second title "gracile" from the outer circle of the *jardinière*. Charming contrasts may also be made by intermixing the glowing scarlet *Poinsettia* with the white *Primula*, double or single, the crimson *Amaryllis* with the *Eucharis*, small plants of white *Azaleas* with dark purple *Cinerarias*; but nothing is more pleasing or effective in my sight than a stand of *Primroses* well grown and tastefully grouped.

Back to the garden. There are some who seem to grudge Nature her sabbath season of rest. I would allocate them to toll-bars in high and bleak situations, and, waking them in the middle of the night with dissonant screams and ill-played horns, would bring them out with bare legs into the snow. There are some who see no beauty in her sleep, who take no interest in their gardens from November to May. Let not these usurp the grand old name of "gardener." The colouring is paler and the outline less defined, but there is an infinite variety of tint and symmetry in this wonderful picture of Still Life. There are gleams of gold, and silver, and bronze, as on the *Aucuba*, the *Holly*,

Vinca, and *Berberis*; flashes of scarlet on the berries of which we have spoken; and even when all the garden wears its shroud of snow, there is the sunset of memory and the sunrise of hope, everywhere the suggestion of a glory which has passed, and the promise and preparation of a glory to come.

But some can see nothing smaller than a Sunflower, and some never venture to express their approbation of a plant until the duke's gardener has told them that "it's a good thing," or they have read its praises in print. As for noticing a plant out of flower or a tree out of leaf, they would as soon think of commending a brave soldier out of uniform, or a champion cricketer without his bat. They care about as much for a *Sedum* or anything else that is minute and lowly as a mad bull for a musical box; and you might as well read to them a bit of Confucius in the original as Ruskin's exquisite and true description of the Lichen and the Moss.

They will not conceal the form of the rock, but will gather over it like small cushions of velvet made of mixed threads of dark ruby silk and gold, rounded over more subdued films of white and grey, with lightly crisped and curled edges, like hoar frost on fallen leaves, and minute clusters of upright orange stalks with pointed caps and fibres of deep green and gold and faint purple passing into black, all woven together, and following, with unimaginable fineness of gentle growth, the undulation of the stone they cherish, until it is charged with colours, so that it can receive no more, and, instead of looking rugged, cold, or stern, or anything that a rock is held to be, it seems to be clothed with a soft dark leopard skin, embroidered with arabesque of purple and silver.

Do we not find this indifference to things common, however beautiful, where we should least expect it? Have we not been disappointed visiting or receiving gardeners of some reputation to find that they have only learned two or three tunes, and will not listen to any other? Were you never sadly bored by a companion who seemed far happier in finding out what things you had not, than in admiring those which you had, who "was really surprised not to see the new *Anthurium*, and wondered how you could exist without a plant of *Lapageria alba*?" And there is the odious wretch who always condemns by comparison—"Yes, it is a nice little plant, but you should see a specimen which was exhibited last season, 6 ft. across, with 500 blooms, every one of them three times as large as that."

I remember a farmer in my hunting days who bought and sold a good number of horses, but never was known to praise a steed which was not or had not been in his own possession. The nearest approximation to any such eulogy was uttered to myself, when, as we were one day returning from the chase together, I expressed my admiration of an animal which had carried its owner bravely through a long and difficult run. "Oh, yes!" replied my companion with a frank vivacity, which at first surprised me, "he's a nice plain slow 'oss." And so there are gardeners who always, show them what you may, will damn it with faint praise.

And the explanation, as it seems to me, is partly this. That in the days of our great prosperity and wealth, horticulture, like many other cultures, was enervated by luxury. The gardener became a gourmand, and lost his zest and relish for his ordinary wholesome food. More than twenty years ago "in the most high and palmy state" of the Garrick Club, a young Guardsman came one night into the dining-room long after we had all finished our repast, and languidly asked a waiter what he could have for dinner. But when the attendant suggested "Beef-steak, Sir?" the soldier made a sudden start, and uttered an expressive "Oh! oh!" of horror. "Chop, Sir?" provoked a second shudder, as though the very thought of such coarse, vulgar food was as an east wind upon the exposed nerve of a

tooth, or the boot of a bargee upon a corn. Ultimately the exhausted warrior refreshed himself with a snipe and a bottle of champagne! We know what comes to the pampered persistent epicure as surely as delirium, dropsy, and a hundred other maladies to the drunkard—surfeit and sickness. And so luxury, and excess, a fastidious craving for titbits and rarities, produced among the florists that terrible disease—a combination of scarlet and yellow fever, rash, measles, and jaundice, which went by the name of *Bedding Out*.

Bedding Out in Summer and Winter, the difference between them being this, that there is something to be said for the former, but for the latter nothing. We, who have suffered most from our folly in spoiling a pretty garden by clearing away flowering shrubs, bright evergreens, beds and borders of herbaceous flowers, to make way for the gaudy idol, who have broken the kaleidoscope, which made our eyes ache, and exchanged our spangled harlequin tights for more graceful and becoming dress, we are, nevertheless, of the first to affirm that there are certain gardens, having ample space for every phase of horticulture, in which the system of bedding out half-hardy plants may be effectively introduced. More than this, we thankfully acknowledge that the *Spring Garden* was an emanation, an offspring far more beautiful than its parent, from the summer system, and has by its natural grace and beauty added much to the enjoyment of a garden; but of those arrangements which attempt to turn winter into summer by dotting the beds with baby evergreens and vegetables having coloured or curly leaves, which look about as happy in frost and snow as a lot of little fishes on the towing-path of a canal for this winter garden, even when enriched with pathways of cockle shells and powdered bricks, we have nothing but a groan or a grin.

It may be that I am disabled by strong prejudice from reasoning rightly in this case. The bitter experience of a great catastrophe and defeat may have enfeebled my perceptive powers. The reader shall hear the sad story of my sufferings, and I know that he will feel for me, if not with me, when I have told my winter's tale. Scampering like a silly sheep, with the rest of the floral flock, wherever that tinkling bellwether, Fashion, was pleased to lead us, I found myself in a winter garden. This consisted of ridiculous little evergreen shrubs, prematurely brought into public notice from the nursery like some other small children—Hollies, Aucubas, Laurustinus, Junipers, Euonymus—collected at no small outlay of time and metal. These precious pigmies were so carefully and tastefully arranged, that the garden resembled and rivalled a segment of the nursery from which they came, and the general effect was that of a doll's cemetery laid out on an enormous scale. But there was, nevertheless, a most charming and complete success in two large groups of Aucuba and variegated Kale intermixed, gleaming, like the cohorts of the Assyrian, with purple and gold, streaked with silver, flushed with roseate hues. I had seen this combination in the charming gardens at Belvoir, and by the kind aid of my friend, Mr. Ingram, who gave me a packet of his seed, I had accurately reproduced it. It was in full glory, the admiration of all who saw it, when one evening—

O, melancholy night! The worst Time ever saw
In lasting labour of his pilgrimage.

I went out to dine. The garden gates were left open, and when I returned I saw in the moonlight some six or eight vagabond cows, who, exhilarated by their supper (they had scarcely left a leaf of the Kale) or set in motion by the sound of the wheels, appeared to be dancing a quadrille in my winter garden. I caught cold and spoilt my best evening boots in chasing them away, and dreamed all night that great

herds of bulls and buffaloes galloped over my bed into immense warehouses of china adjoining, and awoke next morning to find the pride of those stuck-up little dwarfs crushed and broken, and a sufficient number of graves in my liliputian cemetery for all the worn-out dolls in the midland district.

Unkindest cut of all, I met with little condolence. My father said, that if I filled the garden with Cow Cabbages the cows would naturally infer an invitation and accept it; and a neighbouring squire remarked when he saw it—instead of sympathising and blending his tears with mine—that he “thought he had got into Mr. Bull's Nursery, and that my long face reminded him of Macbeth when he said—

Accursed be that tongue which tells me so,
For it hath *cowed* my better part of man.”

I said that no doubt it was all very funny, and the utter destruction of a pretty garden was quite a gem in jokes, but that somehow for the life of me I failed to see it. And he, first looking at me and then at my winter garden, broke out into peals of mirthful laughter—and so did I.

S. R. H.

THE GARDEN FLORA.

PLATE CCLXVI.—LEPTOSPERMUM LANIGERUM.

LEPTOSPERMUM LANIGERUM is one of the characteristic Australian Myrtles, or Tea plants as the colonists designate them. It is one of some 500 species, many of them very beautiful, belonging to about twenty-five genera. They constitute a tribe distinct from the true Myrtles, which are equally numerous in south America. The essentially Australian tribe Leptospermæ extends to New Zealand, and it is also represented in the Malayan Islands. With the exception of the Gum trees, and two or three small genera, the tribe is composed of small-leaved evergreen shrubs and trees, many of them having gorgeously coloured flowers, and most of them, like the present, flowering very profusely. Among those bearing brilliantly coloured flowers are the genera Callistemon, Calothamnus, Metrosideros, and Beaufortia. Years ago many of these fine shrubs were introduced into our gardens, but few of them are seen now. In the Scilly Islands and some other localities on the west coast where the climate is favourable, they succeeded in the open air. *Leptospermum lanigerum*, judging from the variety of soils and situations in which it grows naturally, should be as easily grown as a Camellia. It abounds in Tasmania and the colonies of South Australia, Victoria, and New South Wales, from the sea coast to a considerable altitude in the interior. Mr. Ronald Gunn, who collected largely in Tasmania from 1836 to 1845, supplemented his dried specimens by copious notes on size, soil, situation, &c. Respecting the present plant, one of his notes runs as follows: “Very abundant upon the wet, healthy plains between Lake St. Clair and Macquarie Harbour, growing, as upon Rocky Cape, 1 ft. to 3 ft. high, which I had fixed in my mind as the maximum of the species. You may judge, therefore, how puzzled I was at finding what I believe to be the same growing at Detention Corner (on the same road) 12 ft. high, and farther on finding trees 60 ft. to 80 ft., with a circumference in one case of 9 ft. 9 in., and which I also believe to be the same. I fired at the branches of one of these trees and brought down some twigs, which I send.” His opinion respecting the specific identity of these various collectings has been endorsed by Mr. Bentham and other botanists who have written on the vegetation of Australia. The remarkable point is that it should flower freely, both as a shrub 1 ft. high and as a lofty tree. In another note Mr. Gunn describes it as a shrub 6 ft. to 12 ft. high, growing on the banks of rivers and rivulets; and in a third he states that it grows in very wet, marshy situations. Several other labels embody similar information, and Gunn likewise collected the same species on the sides and tops of the Western Mountains, where it formed a tree 20 ft. to 30 ft. high. Besides the diversity in stature, it is very variable in the size and shape of the leaves, in the degree of hairiness, and in the size of the flowers. The accompanying figure represents a variety with medium-sized leaves and rather large flowers. The species is not new to cultivation, having been introduced and



LEFT SPECIMEN - AN. PERUM.

cultivated more than fifty years ago. It should be added that on the mainland of Australia it often inhabits comparatively dry situations. Altogether, the genus *Leptospermum* comprises about a score of species, but all those having showy flowers are very much alike in general appearance. *L. flavescens* and *L. scoparium*, both of which are equally variable, and have a much wider area of distribution than *L. lanigerum*, the former extending to the Indian Archipelago and Malacca, and the latter to New Zealand, have been in cultivation. They have not the woolly calyx of *L. lanigerum*, and *L. flavescens* has yellowish (not yellow) flowers, otherwise they are all three very much alike.

W. B. HEMSLEY.

Culture and Position.—Mr. W. O. Stanley, of Penrhos, near Holyhead (from a fine bush on whose lawn specimens from which our coloured plate was prepared were obtained), writes to us as follows concerning this *Leptospermum*: "It is," he says, "well named *lanigerum*, for in June it was a mass of white flowers as if it were covered with fresh fallen snow. It is found to require a sheltered spot, as the sea gales from the south-west destroy its beauty. Like all New Holland shrubs, it will stand a considerable amount of frost, but in early spring occurs the greatest danger, as the sap rises early; indeed, it seems to grow all winter; so when the early frost comes and the earth is still cold, the hot sun affects it—the feet are cold, but the head is warm—and, as Sir J. Hooker tells me, this is the greatest danger to all Australian shrubs. The frost bursts the bark of the branches and the stem near the earth; it will appear to thrive for a summer, but then gradually dies off. I was afraid this was the case with my large plant, but it has stood the last two severe winters, and although the bark is burst in many places, it seems to flourish and make fresh growth, much dead wood being cut away. I cannot say exactly, but it has certainly been planted more than 35 years. Sir J. Hooker tells me some winters it will survive planted against a wall at Kew, but severe frosts kill it."

THE STAPHYLEAS, OR BLADDER NUTS.

THE *Staphyleas* are a free-flowering class of shrubs, attractive both when in blossom and when bearing their singular inflated seed pods, from which the English name Bladder Nut is derived. The species



Staphylea pinnata.

are—*S. pinnata* (the common Bladder Nut), the strongest growing of the genus; in this the leaves are composed of five or seven leaflets, and the flowers, which open in May and June, are white, and are succeeded by the pods to which allusion has just been made. This, and in fact all the species, throw up suckers with such freedom as to form dense bushes; therefore in propagating them the only thing required is to detach the suckers from the parent plant, when they will be found already rooted. This plant is commonly distributed throughout Europe, and is even found wild in some parts of England. *S. trifoliata*, a North American species, bears (as its name implies) trifoliate leaves, but in flower and habit it resembles *S. pinnata*, only

weaker in growth. *S. colchica* bears much larger panicles of flowers than the two preceding species; indeed, it has lately taken high rank as a plant for early forcing, as it forces very readily, and when thus treated the flowers are of a purer white than those which open out-of-doors. It is a native of Asia Minor, but has been largely imported from French gardens within the last few years. ALPHA.

THE FRUIT GARDEN.

FRUIT CULTURE FOR PROFIT.

THE object which I have in view in regard to this matter is to popularise fruit culture by creating a general interest in it. That hardy fruit culture is in a backward state in this country it is impossible to doubt; the state of many orchards loudly proclaims this fact; but all that any one can hope to do is just to add a little to the general fund of knowledge, to throw a little light here and there on the obscure places, and so help to carry the subject onwards. It is the Vine that has made the peasant farmers in France so prosperous, and if small farms in this or any other country are ever to yield a living profit, fruit culture must be made to furnish one of the main props. The demand for fruit for our ever increasing town populations is constantly getting larger, and it must be borne in mind that, unless we are up and doing, the foreigner, with his greater aptitude for minutiae in his work, his greater care in small things, will step in and reap the profit. In this and succeeding portions of the subject, which will in due course follow, I shall say all I want to say as plainly as I can without weighting myself with a single unnecessary word, and for this reason I shall eschew all scientific and technical terms. The title may to some seem rather out of place, inasmuch as I am not treating upon market fruit growing exclusively; I am, however, trying to take a comprehensive view of the subject, looking into all its details, and I contend that all fruit culture, whether it be carried out on a small scale for home supply or in a market garden, either is or should be regarded from the standpoint of profit and loss. Let us, therefore, commence with bush fruit.

The Gooseberry.

In some of the northern and midland counties, societies have long ago been established for the purpose of encouraging the production of large individual fruits, and through their agency have sprung up those monster berries we occasionally read about in the newspapers. To the amateur growers clustered round the large northern and midland towns the culture of the Gooseberry for exhibition becomes an interesting pursuit, and is the cause of much emulation, leading to much thought and study bearing upon the best methods of increasing the size and weight of the fruit. Though we may not always sympathise with a given object, yet we must admire earnest, steady, persistent effort, even though we fail to see its real utility. I remember a good many years ago visiting an amateur's garden who was famed as a prize taker at the Gooseberry shows, and the way in which his bushes were trimmed and trained, and the manner in which their wants were supplied, especially in the way of moisture, was most interesting. The fruit was severely thinned, and little dishes of water were placed under the bushes, so that during the warm sunny days a soft and genial atmosphere constantly enveloped the fruit, adding much to their size. Though the production of monster Gooseberries is interesting to those members of Gooseberry societies who are anxious to win a prize, they do not meet a really useful want, and need not be further referred to here. Such kinds as Crown Bob that bear immense crops of berries for gathering green, or the Warrington for making into jam when ripe, are better to grow for profit. Gooseberries are adapted for planting in various positions, but the soil for the main crop must be deep and rich. In poor soil in dry summers the fruit never attains full size or flavour, though for meeting special wants positions not generally suitable for producing first-rate fruit may still be profitably utilised. In large towns there is a brisk demand for early green Gooseberries for making tarts, &c., and they are eagerly bought up in the neighbourhood of Exeter and other places on the west coast for the London markets, as a week or even a very few days in point of earliness adds immensely to their value. Thus anybody in possession of a warm, dry, early bank may plant it with Gooseberries for gathering green to obtain them early in the same way that warm sunny slopes are planted with

Strawberries to meet the first demand, and such a crop is often more profitable than if permitted to ripen.

Form of Bush.—The Gooseberry may be trained as pyramids or espaliers, or as palmettes on fences or walls, but the bush form is best, as it involves no expense in training. The bush should stand on a clean straight leg, not much less than 9 in. or 1 ft. long. The head should be made to assume a circular form, with the centre kept open by pruning for the purpose of letting in the air and sunshine, as well as to enable the fruit to be readily gathered; an expert cultivator with a good eye and a sharp knife finds no difficulty in making his bushes assume the desired shape. If we take a cutting of a Gooseberry or Currant bush, say 15 in. long, cut out all the eyes except the three upper ones, cut the base across smoothly beneath a joint, plant its lower 3 in. firmly in the ground, and mulch with short manure or litter, the three eyes or buds left will in nearly every case make three shoots, and at the end of the first year commences the pruner's work of training the bush, and this is done simply by pruning to an eye pointing in the direction we wish the future branch to take. Thus it is easy enough to keep the centre of the bush open by cutting to eyes pointing outwards, and a bush that naturally assumes a weeping habit, like the Warrington, may be lifted upwards by cutting to an eye on the upper side of the shoot, whilst those bushes with too erect a tendency, such as the Champagne, may be made to assume a morespreading habit by cutting to an eye situated on the lower side of the branch. It will thus be seen that with bush fruits the form is in the pruner's hands, like clay in the hands of the potter, and may be as easily made into any shape. Of course in the case of pyramids there must be some support for the main stem. A stout stake 5 ft. or 6 ft. high should be driven into the ground, and against this stake the tree should be planted, and its leading shoot tied to it. Though the natural habit of the Gooseberry is not suggestive of a pyramidal outline, yet by training the branches will rise tier above tier, gradually narrowing from its base to the summit, and where land is scarce and the most has to be made of it this is a very good way of growing Gooseberries.

Planting.—They may be planted in beds or quarters by themselves, or they may be planted as undergrowth with taller fruit trees, such as Apples, Plums, or Pears, to form the top crop. They may also be planted either as dwarf bushes, or trained on espaliers round the margins of the vegetable quarters. In the kitchen garden the former is a common mode of culture, but however and wherever they are planted, the land should be well manured and well cultivated before planting, and they should not be planted too near each other; a space of 5 ft. square is not too much for a well-developed Gooseberry bush to allow the light to play all round it, and give free access for the purpose of gathering the fruit. On the best soils the distance should be increased rather than diminished. It is true the bushes will not occupy all the space for two or three years, but other crops of dwarf growth, such as Lettuces, Spinach, &c., may fill up the intervals till the bushes have made some progress. Strawberries are a good crop to plant with young Currant or Gooseberry bushes, as by the time the latter require all the space the former will have done their work. When the bushes are allowed the full space named, at first very young bushes should not be selected, as those five or six years old, if they have had justice done them in the nursery, will transplant in November and bear a good crop of fruit the following season. In proportion to the bulk of the trees there is scarcely any fruit tree that bears a heavier crop than the Gooseberry, and there is no tree that during a time of pressure, such as a hot, dry summer, pays better for extra support or that is better able to assimilate and turn it to the best account. During a severe drought, when the bushes are heavily laden, if the ground beneath them is mulched and a soaking of sewage or even clear water is given, it has a marvellous effect in bringing the fruit to perfection. The adaptability of the Gooseberry for all positions is not taken advantage of to the fullest extent. There are everywhere hundreds of feet of bare walls and fences in north and other aspects that would yield a good return if planted with Gooseberries or Currants. They might be planted 4 ft. apart, and the branches trained up vertically palmette fashion, and in this way walls or fences would soon be profitably covered.

Pruning.—Gooseberries do not receive so much attention in summer as regards pruning as they require. The fruit would be

better flavoured and finer if the young wood was thinned out with a pair of small pruning scissors towards the end of June, keeping an eye upon the shape of the bush at the time, so that its symmetrical outline is not marred. It is not often that market growers over-prune; if they err at all it is in the opposite direction. But I am convinced among amateurs who take a warm interest in their gardens, and who are apt sometimes to ride their hobby too hard that a serious loss of crop does result from too much knife work in the case of Gooseberries and probably other fruits also. The best way of pruning the Gooseberry—especially on good land of a heavy nature—is to thin out the young shoots in summer when they have nearly completed their growth. This will consolidate the wood left for bearing and let in the air and sunshine to ripen the fruit. In the autumn or winter, when the leaves are down, the bushes should be gone over again to put them into shape, and any more thinning that may be required should be done, and the unripe points of the shoots may have a few inches cut off them, but the less shortening they receive the better for the fruit crop. Excessive pruning has the same effect everywhere in a greater or less degree, that is, it causes the production of a redundancy of soft wood that cannot bear fruit, because it never acquires sufficient ripeness or firmness; and in the case of Gooseberries when closely spurred in, the parts that would if left bear fruits, viz., the ends of the shoots, are generally cut off. I have often seen the bad effects of severe pruning in the case of Gooseberries. The bushes run wild from want of a load to steady them, which was cut off at the autumn pruning. Let the face of the cut be smooth, and to accomplish this the instrument used must be sharp. A rough, jagged wound takes longer to heal, and looks slovenly and unworkmanlike. The same objection may be urged against those long sloping cuts which the late Dr. Lindley called ladies' cuts. Sever the branch near a bud by placing the knife on the opposite side to it, cutting through to the side on which the bud is placed at an acute angle. A little practice is worth a good deal of theory, although all theory that is based on sound practice is calculated to help us to understand and master the subject quicker, and more easily and thoroughly; but in performing any operation, unless we closely observe its effect, we fail to learn all that the subject matter is capable of teaching. Thus in pruning, say a Gooseberry bush, we should observe the trees carefully the next year, with a view to discover whether we have pruned too much or too little, and be guided accordingly. In this way a sound system of management will be built up, at least so far as the Gooseberry is concerned.

Caterpillars and Birds.—Green fly sometimes curls up the young leaves, but the chief enemies to the Gooseberry are those just named; and if the birds would only eat the caterpillars, as it is sometimes claimed they do, the mind of the Gooseberry cultivator would be set at rest, but until that happy time arrives both have to be reckoned with and circumvented in some way or other. Where bullfinches are numerous they must be shot, and the same course of treatment is best for sparrows also. There is no fear of the sparrow being exterminated; I daresay we should miss them if they were, the same as we should the flies, or any other domestic insect or animal whose existence is not of prime necessity to our welfare, but the sparrow is a wide-awake bird, and knows how to take care of himself. I have sometimes on a dark night taken a bat-fowling net and gone round his lodgings, but he always sleeps with one eye open, and is not easily caught. But in this, as in all other matters, prevention is better than cure; and there is more than one way of preventing birds eating the buds of Gooseberry bushes. The buds may be made distasteful by syringing some thick liquid over them that the birds do not like. A mixture of soot and lime is the simplest, and will not cost much either of time or money, and adheres pretty closely to buds and boughs; and I have generally found that when they taste anything that disagrees with them, they are not often troublesome in the same spot again, even when the dressing has worn off and disappeared. Another way of keeping off birds is to act upon their fears and suspicions, and tie dark coloured twine or thread from branch to branch and bush to bush, especially over the tops of the bushes, where the birds like to alight to begin their depredations. This is usually effectual in keeping them off, but not always, for sometimes they will not be deterred where the birds are many and the food supply malls. The caterpillars may easily be kept down by hand-picking if taken in time, but as they cling to and feed upon the undersides of the leaves, the enemy can effect a lodgment

almost unperceived. In dealing with an evil of this or any other kind, we should first ascertain something of its cause and history. The fly, the origin of the caterpillar, measures about five-eighths of an inch across the wings when extended, and the body is about three-eighths of an inch long. She lays her eggs along the ribs of the leaves in rows; the eggs grow rapidly, and the grubs are usually hatched in less than a week, and begin feeding on the leaves at once. This being so, it will be obvious that where we have a suspicion of their presence, or if the flies have been noticed round the bushes, if we find and pick off the leaves on which the eggs have been laid, we could destroy them and prevent them doing mischief. I may say the fly is a gay-coloured insect, throat yellow with black spot above and below, body yellow, with yellow legs and black feet; it has four wings. In a couple of months the grub comes down from the tree to the soil, in which it burrows 2 in., 3 in., 4 in., or more according to its firmness, where during the winter it gradually undergoes a change, and emerges as a fly in the month of April or beginning of May. From eggs laid the beginning of May the insect will sometimes go through its changes by July 10 or soon after, the first brood taking about twenty-eight days; the second will remain underground till the following spring. A good remedy is to make the ground as firm as possible by treading or beating all under and round the bushes as far as the branches extend to prevent the grubs burrowing, and by removing some of the surface soil in winter the bushes may be kept free from them. Other remedies are dusting the bushes with hellebore powder—tying the material up in a piece of muslin, and shaking it so that the powder may rise and envelop the leaves. The powder should be put on when the bushes are slightly damp. Shaking the bushes will generally make the grubs drop to the earth, when they can be killed or captured.

SELECT LIST OF GOOSEBERRIES.

Red.—London, Roaring Lion, Warrington, Raspberry, Champagne, Wonderful, Crown Bob, Beauty.

Yellow.—Gipsy Girl, Leader, Oldham, Gipsy Queen, Criterion, Golden Ball.

Green.—General, Lord Eldon, Washington, Rough Green, Stockwell, Queen Victoria.

White.—Antagonist, Snowball, Eagle, Wellington's Glory, Hero of the Nile.

Heavy Exhibition Kinds.—Dan's Mistake, Conquering Hero, Leveller, Catherine, Stockwell, Telegraph, Careless, King of Trumps.

The Black Currant.

The Black Currant may be planted on good land in any situation and it thrives better than most things in moist, shady corners, or on the north side of a wall. In dry soils the ground over the roots must be mulched with manure, or the fruit will be small, and an occasional soaking of sewage will be very beneficial. The Black Currant does best planted in beds or quarters, with no other kind of bottom growth mixed with it. It forms also a profitable crop under tall Apple or Pear trees, as it will do well in the partial shade. Its management and pruning are exceedingly simple, and consists in keeping the trees always well furnished with young wood, as it is on the young branches of the previous year that the crop is borne, and unless these are more than 1 ft. in length they should be left unshortened. The best way of pruning the Black Currant to insure a regular and even crop of fruit annually is to thin out a certain proportion of the old branches every year and encourage the production of young wood to fill up. In this way the Black Currant will continually renew itself, and go on bearing many years; and the best way to treat any old worn-out-looking bushes, instead of destroying them, is to cut them well back into the old wood, and thin out the young shoots that break from the old stools—thus excellent fruiting bushes, with a long period of usefulness before them, will be obtained. The Black Currant can hardly be said to wear out, hence its value in every garden. No doubt one reason of this is, it is not exhausted by carrying its crop over long. When the fruit is ripe, if it is not gathered it begins to fall; unlike most of the other berry-bearing bushes, it scatters its load if not eased of it, and this makes the trees long-lived. The propagation is easily effected by planting cuttings a foot or so long. The Black Currant, in the course of years, is almost sure to become a stool rather than a single-legged bush, and I don't think in this case it is so objectionable as it would be with the Gooseberry or the Red or White Currants. In the latter case, permitting the growth of suckers will almost certainly throw the system of

the trees out of gear, and lead to unfruitfulness. But in the case of the Black Currant, when the bushes are advancing in years it seems to give them a much-desired stimulus. Of course the knife must be used freely to thin out the old wood, so that the young shoots can have a chance of ripening. Black Currants should be planted from 5 ft. to 6 ft. apart each way.

Red and White Currants.

The White Currant is usually less vigorous than the Red, and is generally of dwarfer habit, consequently may be planted rather closer together, and therefore it is better that each should occupy a row, or it may be a plot or quarter to itself, rather than be mixed indiscriminately. The fruit of Red and White Currants will hang in a good state of preservation till October if protected from birds, and they readily yield to almost all forms of training. Every bit of vacant space on the worst aspects of walls or fences may be planted with Currants; they may be trained as two or three-branched cordons, or seven or nine-branched palmettes, and in either way will rapidly cover a 10-ft. wall. All that is required is to shorten back the leader of a young plant, to obtain two good shoots to lay in at right angles horizontally on each side of the main stem, and from these obtain a sufficient number of shoots to train up vertically. But the two shoots which are to form the foundation of the framework of the future tree should be led out diagonally during summer to obtain greater strength, and at the winter dressing be dropped down to the horizontal line. The young shoots that break up the sides of the main stem should be stopped back to three or four leaves in June, and be finally pruned back to 1 in. or so in winter. The Red and White Currants bear freely under the spurring system; of course, young shoots should be left to fill up vacant spaces, and it is beneficial to all fruit-bearing trees to feel the impetus which a new shoot or two gives, especially in the case of old bushes; it seems to impart new life and vigour to them. The basin is the best form for bushes to assume, whether dwarfs or standards, and as I have referred in treating of the Gooseberry to the ease with which an intelligent pruner wielding a sharp knife moulds the growth of a tree, simply by cutting to a bud pointing in the direction the branch is required to take, I need not further dwell upon it here. Standard Currant bushes with clear stems from 2 ft. to 3 ft. high are interesting little trees, and are easily made by pruning the bush to one stem till the requisite height is reached, then open out the centre in the same manner, as is done in the ordinary dwarf bush form. The only objection I have to these standard trees is, they seem more liable to form suckers than the low bushes do. The reason probably is the stem does not swell in proportion to the head, and the circulation between the top and the roots is rather impeded in consequence, and so the sap that cannot find a passage up the stem bursts out at its base. The White Currant may be planted about 5 ft. apart and the Red about 6 ft. They will not, of course, occupy all the space for several years, but dwarf-growing vegetables, such as Lettuce, Endive, Cauliflower, &c., may profitably fill up all vacant ground. Before planting any crop that will occupy the ground at least a dozen years, it is important that the land should be placed in a good fertile condition, for fruit bushes that, like Gooseberries, Currants, and Raspberries, seldom fail to bear every season, must be well fed, and it is essential that the ground be well and deeply cultivated and well manured. After the trees settle down to their work, and the roots are fast occupying the land, there should be no digging with the spade, but every season after the pruning is finished the ground should have a dressing of short manure (soot and lime are also useful), and be forked over. I always like to get this work done soon after the leaves fall, at any rate before Christmas. The roots are never idle, and this autumn top-dressing is placed within their reach by the winter's rains. In dry, poor, sandy soil mulching in summer is exceedingly beneficial, and adds much to the value of the crop. It is sometimes considered advisable to defer the pruning till spring in places much infested with sparrows and other bud-eating birds, but I think it is far better to prune early and dress the bushes with something that will make the buds distasteful. However, the buds of Currants do not suffer so much from the depredations of birds as do those of the Gooseberry. As soon as the fruit begins to change colour the birds, especially the blackbirds and thrushes, will begin to take it, and if not scared off with a gun, or the fruit protected by nets or mats, a very few days will see the produce of a large garden carried away, as all the birds in the neighbourhood will come to help in the work. The Currants, like all other things

under cultivation, are subject to insect attacks, but the most common and the most destructive are the green aphides, which attach themselves to the undersides of the leaves, causing them to curl and blister, and ultimately to fall off. The garden engine with soap-suds or soft soap and water well soused among them will dislodge a good many; even clear water will be very useful if taken in time. The fly usually attacks the ends of the branches first, and often the best and most expeditious way is to cut off the curled ends of the shoots and burn them. The bushes suffer no injury from this decapitation, as it is not often the flies are really troublesome before June, the time for summer pruning. The caterpillar sometimes attacks the leaves, and if not checked speedily does a lot of mischief. Hand-picking is the best remedy. If taken in time a few sharp-eyed children will soon clear a large garden. See also what has been said on this subject in the case of the Gooseberry.

SELECT LIST OF CURRANTS.

Red—Raby Castle, Red Dutch, and Red Grape.

White—Victoria and White Dutch.

Black—Lee's Prolific and Black Naples.

E. HOBDAV.

(To be continued.)

PRUNING AND DRESSING FRUIT TREES.

THE season still continues favourable for the pruning of fruit trees, but somehow or other many people have an aversion to early pruning, although for what reason I am at a loss to guess. From my experience, I am prepared to say there is nothing gained by deferring such work, and that the earlier it is carried out after the fall of the leaf the better, as not only is it desirable for the welfare of the trees, which can then be trained, cleaned, and put in order, but one can go over them so much quicker, and without any fear of bruising or injuring the buds. The first that should be taken in hand are

Apples and Pears, and if the first-named are grown in orchards where they can have plenty of room, all they will require is a judicious thinning of the branches, by cutting out with a fine saw all that cross or crowd each other in such a way that when they have leaves on proper light and air is excluded. This opening up will let the sun in to ripen and colour the fruit, which, from being more exposed, will be larger and of better quality than it would be if overshadowed by foliage. To enable the cuts made by the saw to heal over quickly and surely, it is always advisable to smooth them by running a sharp pruning knife over them, which, from removing the jagged parts, prevents any dying back from the effect of wet lodging there, as would be the case if left rough for the winter to act on. Should the stems be mossy, as is often the case, they should either be scraped with a blunt instrument, so as to remove it, or, better still, receive a good dressing of thick lime-wash, with some soot in it to take off its white, glaring appearance. The wash may be easily and quickly put on by the aid of a large brush, or if thought desirable to coat over the branches as well, a syringe or garden engine must be used, from either of which it may be squirted in any direction at will. Not only is Moss got rid of in this way, but other parasites besides, and the trees being thus freed of these seem always to get a new lease of life and show a more healthy appearance at once.

As to Bush or Pyramid Apples or Pears, or such of either as are trained as espaliers where they have to be limited to a certain size, the only way to manage them to insure fruitfulness is to root prune, especially if they are on free stocks which force much wood, for to cut this out is very little good, as, so long as the propelling force is left uninterfered with, gross barren shoots will be produced again and again. No doubt much may be done in the summer by judicious pinching and stopping of the shoots to correct this tendency, but the seat of the evil being at the roots, that is the part to attack, and the best time to do this is early in the autumn, just before the fall of the leaves, as when carried out at that period the wounded roots heal over at once, and hosts of fresh fibres are formed. These lead to the production of flower-buds, which, during the first summer after trees have been thus operated on, crowd about the spurs, which may then be thinned out and shortened considerably, so as to bring them all nearer home. Even now, late as it is, rather than leave rampant barren trees for another year, it will be better to root prune at once, but not to the extent that would be safe and desirable if taken in hand at the proper season, as to do much to them now would cause too great a check, and throw them back for a time. When Apples and Pears have received the requisite attention, the trees to go on with next are

Plums, Cherries, and Apricots, the spurs of which should be kept thin and regular and as close to the wall as pos-

sible, that the blossoms, when open, may derive full benefit from the protection it ought to afford. Unless seen to annually, and as many cut back as will bear it, it is surprising how soon spurs seem to elongate, and more particularly is this so if the pinching is not closely attended to during the summer, for if shoots are allowed to break away then instead of being removed, buds seldom or never form at the base. In regard to Apricots, it is a good plan always to lay in a certain portion of young wood instead of trusting wholly to spurs, as Apricots, like Peaches, flower freely on the young wood, and it often happens that the bloom from this escapes frost when that projecting further from the shelter of the bricks is cut off, and not only this, but as branches die off there is always then plenty of shoots to train in their place and fill up the vacancies. Peaches and Nectarines come in last, and to retard these to as late a period as possible it is advisable to loose them from the walls and tie them out to stakes or other supports away from it, which will be the means of keeping them back a week or more, and this may make all the difference between success and failure in getting a crop.

Bush Fruits, such as Gooseberries and Currants, are often left till very late before being pruned, many thinking thereby to avoid the loss of buds by sparrows and other birds, which is a great mistake, for if these depredators begin them at all they generally make pretty clean work where they go; and if not, they take away such that no one can prune in a manner that will leave a shapely and fruitful bush. Rather than defer the pruning it is much better to do it early, and adopt any simple means of keeping birds off, one of the easiest being to syringe the branches with lime and soot wash, like that recommended for destroying the Moss on trees. By coating the buds in this way they are safe, and not only that, but the Gooseberry caterpillar is made to take its departure, as the lime that goes into the earth destroys the larva where it lays ready to hatch out in the spring.

S. D.

Vines in the Open Air.—In continuation of the remarks on this subject (p. 633) allow me to offer my experience. When I came to my present residence eleven years ago in the month of August, I found four Vines, which had been very much neglected, full of Grapes, but eaten up with mildew. My first operation during the winter was to cut them down to within 1 ft. of the ground. During the following summer I selected two shoots from each stump, and trained them straight up the wall; they made rods from 14 ft. to 16 ft. long; these were pruned during the winter slightly, that is, they were left as long as the wood was good. Next summer these rods carried over one hundred bunches of Grapes which ripened perfectly; there was also run up one fresh rod from the base to each Vine, thus making twelve rods to the four Vines. The next winter six of these were cut down to the very bottom, and six were left alternately, and that has been my practice ever since. The only year I failed to get a crop was 1879, when, in consequence of the wet and cold summer, the Grapes failed to ripen. The aspect is west, the wall about 20 ft. high and 24 ft. long, thus allowing 2 ft. between each rod. I do not know the variety; it is a white one. Although we grow Grapes under glass, I assure you the out-door ones are much appreciated.—H. MURALL, *Maidstone, Kent.*

The Fameuse or Snow Apple.—In THE GARDEN of the 18th ult. a quotation is inserted from the *Country Gentleman* extolling this Apple. Some of your readers may be interested to know how it has succeeded with me in Ireland. In November, 1863, I brought several trees of this variety from Canada, and planted three of them in my kitchen garden (Co. Carlow); two of these survive and bear a few Apples annually. The effect of a different sunless climate upon them is remarkable. Instead of the bright crimson fruit seen in Canada, they here yield a smaller green Apple with a faint blush on its side facing the sun. Inside the skin, however, the flesh retains its snowy whiteness, and is sweet and very juicy. Some years back I tried, by twisting round the green sides of the Apples to the sun, to improve their colour; in two or three days the sides so turned had obtained the red blush. The Fameuse is an early non-keeping Apple.—J. H. W. THOMAS, *Cannes.*

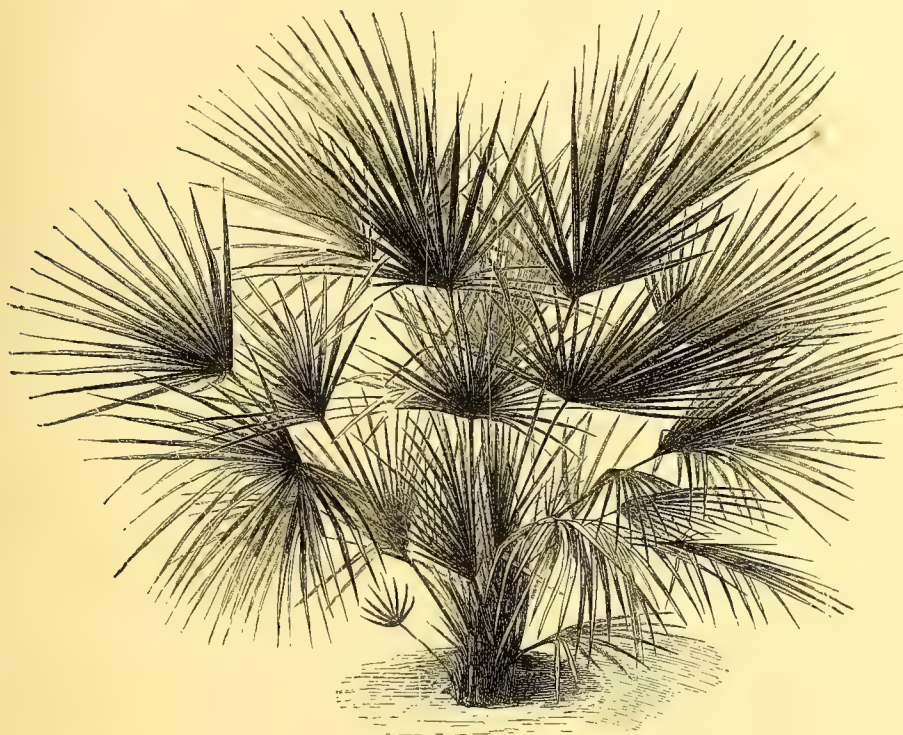
The Chili Peach is spoken of as very hardy in Canada. Have any of THE GARDEN readers grown it?

Erica melanthera.—This, though not a new or rare plant, is not grown so abundantly as its merits deserve. It well repays any attention that may be bestowed on it by a wealth of flowers rarely seen on any other plant. They are of a pale mauve colour, with black anthers, and though small render the plant, when in bloom at this season of the year, very pretty and attractive.—J. S. T.

THE INDOOR GARDEN.

SOME OF THE HARDIER PALMS.

PALMS are so suggestive of the Tropics, that it is generally believed they all require a tropical temperature, and in the case of the



Chamærops Fortunei.

greater number this is undoubtedly correct. There are, however, considerable numbers of species whose hardier nature renders them capable of cultivation in an ordinary greenhouse, and to this number belong the two plants represented by the accompanying woodcuts. Nothing gives a plant house a more striking appearance than Palms, and the ease with which they may be cultivated renders them doubly valuable. The two plants here figured are perhaps the best known of the many Palms which we possess, though their fitness for greenhouse culture is not generally understood.

Chamærops humilis is the only Palm that is truly European, the Date Palm (*Phoenix*) so extensively cultivated in Southern Europe, having been introduced from North Africa. Although the specific name of this plant implies dwarfness, it is known to reach a height of from 20 ft. to 30 ft., a fact confirmed by the fine specimens of it at Kew and elsewhere. It has been cultivated in this country since the year 1731, when it was grown by Phillip Miller, in the Apothecaries' Garden, at Chelsea. It is one of the few Palms which produce offsets from the base, by which it may be readily propagated. In the south of England it has stood out-of-doors for many years without any protection from frosts other than that afforded by a mat, and has a very distinct and graceful appearance growing amongst other outdoor vegetation. If in tubs it may be placed outside in summer, sinking the tubs below the ground level; in the winter a place in a cool greenhouse may be afforded it. Grown in this way it has a much fresher and more graceful appearance than when permitted to stand outside all winter. In pots it also forms a beautiful plant, as is well shown in the accompanying illustration. A light rich loam well drained is the kind of soil in which this plant delights, and for young plants a little leaf-mould may be added; manure water given now and then will also be found of benefit to it, especially when large. The petioles of this species are clothed with sharp brown spines; the leaf blade is fan-shaped, rigid in texture, and divided into from twenty to twenty-five deeply-split segments. This species is what is generally known as the Dwarf Fan Palm.

C. Fortunei, of which the annexed is a representation, is a native of Northern China, whence it was introduced to this country by Fortune in 1844. It is quite as hardy as the species just described, from which it may be distinguished by the absence of spines from the petioles, which are slightly serrate. The leaf blade, too, is of a more graceful character than that of that species, and is divided into about forty segments, which are again less deeply split than in *C. humilis*. This description will answer for another supposed species named—

C. excelsa, which is also a native of China, and to all appearances identical with *C. Fortunei*. The plant sometimes met with under the name of *arborescens* is considered to be only a form of *C. humilis*, and *C. tomentosa* is an Indian species also resembling in its young state *C. humilis*. Other less common species which resemble one or other of the above are *C. Martiana* and *C. Ritchiana*, both Himalayan kinds; *C. elegans*, a very beautiful plant, the young leaves of which are covered with meal-like scales; and *C. hystrix*, the only true member of this genus found in America. It is a native of Georgia, and has a creeping trunk, and spines sometimes 15 in. long.

The *Livistonas* have not yet proved capable of standing so low a temperature as the different kinds of *Chamærops*, though most of them may be grown in a greenhouse and set outside in summer. The species of which the annexed is an illustration is the plant generally known under the name *Latinia borbonica*, and is well known. For general furnishing purposes it has few equals, as is proved by the large number grown by those who supply plants for such purposes. Other species are: *L. rotundifolia*, the leaf blade of which is round, giving the leaf a peltate appearance. The petiole is thickly clothed with short, thick, dark brown spines. It is a native of Java, *L.*



Livistona sinensis.

Hoogendoyi resembles the last named species, but may easily be distinguished by its shorter, thicker petiole and more rigid leaf

blade. *L. Jenkinsiana* and *L. olivæformis* are very similar in appearance to *L. chinensis*. *L. australis* is generally known under the name *Corypha*, and is a commonly cultivated species. It has long petioles, which are clothed with sharp brown-tipped spines, a rotundate leaf blade, which is smaller than that of other species and furnished with a cream-coloured blotch surrounding the base, where the petiole joins it. Other less known kinds are: *L. inermis*, *L. papuana*, *L. subglobosa*, &c. As to soil and treatment, these are similar to those recommended for the *Chamærops*, though owing to the less hardy nature of the *Livistonas*, they require a higher temperature in winter than the *Chamærops*. Z. B.

SELECTING WINTER DECORATIVE PLANTS.

IN the summer-time, when all kinds of flowers are plentiful, no one hardly ever thinks of making a selection of the most useful plants and flowers; but as winter approaches, and especially this season of the year, we begin to find out that many things are comparatively worthless so far as being either ornamental in habit or leaf, or producing a quantity of choice and useful flowers. The value of selection therefore stands out in bold relief, and the smaller the accommodation for production is the more does this fact become apparent. Those with abundance of glasshouses and an unlimited supply of artificial heat may have little regard for this; but the great majority of us always find that our means of production never exceed the demands. Some years ago I was fond of going in for a variety of fine-foliaged and flowering plants, but for some seasons past we have been gradually allowing our notions of this to slip into the background, and directing attention to selecting those plants alone which afford the greatest amount of usefulness with the least labour and expense. Fire heat we cannot brag about nor depend much on, so that our ways and means are not very elevated or out of the reach of small growers; and yet at the present time we cut large quantities of choice flowers almost daily, and make a very creditable display of dinner-table decorations on many large occasions, and all our success we attribute to selection. Growing one or two plants only, of anything or everything, has never proved satisfactory. Growing really good, useful things in large quantities is the only plan to insure a large supply of what is most wanted.

Chrysanthemums, of course, form a staple article during November and December, but they can hardly be regarded as the choicest of flowers, and are of little use by themselves. *Cinerarias* are good and showy, but in my opinion not one person in a dozen who grows them can manage to do them thoroughly well and have them in flower when most wanted. Their great liability to be infested with insects is much against them at all times, and we have often seen very poor plants take up space and time that would have been much better devoted to something else. We do not include them amongst our easiest-managed things; and, wrong as it may appear, we have the same ideas about *Cyclamens*. Although we go a good deal amongst all kinds of gardens, it is very rarely indeed that we find *Cyclamens* paying for either their attention or space. I know they look first-class in exhibition form, and the accounts of them we occasionally read are gratifying in a way, but their cultivation with the majority is a failure. I would like, and yet I do not like, to say to one and all, "Grow them," as I feel certain if the advice were generally accepted, disappointment would follow with few exceptions.

Primulas are very different; every one should grow them. Good strains of the single-blooming kinds are valuable, but these are simply "nowhere" compared with the new double varieties. We have some dozens of them, and our great ambition is to have them by hundreds. They are as easily cultivated as the others, and they bloom far more freely. If allowed, they would bloom all the year round, and at this season they throw up their flower-spikes in crowds without any forcing assistance. It is love at first sight with every person who sees them, and the use and appearance of the blooms in a cut state is beyond description. *Bouvardias* are very different-looking, but they are the most delicate in appearance of all our winter flowers. They might well take the place of *Ixoras*. We have been cutting handfuls of them weekly for some months past from plants in a temperature of from 45° to 60°, and they are now far from being exhausted. *Poinsettias* are very different again in appearance, but none the less useful. They may be grown in a cold frame all summer, and they never fail to produce their glowing heads in December. When cut, they last longer in water than most things, and on this account, as well as for their cheerful appearance, they should be extensively grown. *Erica hyemalis* and *E. gracilis* are in our selections of Heaths. *Azaleas* of the *indica alba*, *Stella*, and *amœna* type are distinct, choice, and easily managed. Surprising as it may appear to some, they are more free in flowering at this season than zonal *Geraniums*, and their flowers are more choice and useful when cut. *Geraniums* may produce a few heads of bloom at this

season, but as for their producing an abundant succession of bloom at this time, it is what not one person out of every hundred who grows them sees them do. Bulbs, especially *Hyacinths* and *Narcissi* of the early-flowering kinds, are no trouble, provided they are potted early. Our early batches will soon be out of bloom; we cannot keep them back.

Camellias will soon speak for themselves if they only get a fair chance. We cut blooms in November from a plant of the old double white that has now over 1000 buds on it yet to expand, and we regard it as a treasure and gem of the first water. No new white or any other coloured variety has ever equalled this in profusion of flower, and it well deserves attention and culture. Those who can cut a good basketful of double *Primulas*, *Poinsettias*, *Bouvardias*, *Ericas*, *Azaleas*, *Hyacinths*, *Narcissi*, and white *Camellias* on Dec. 25 will have cause to feel pleased with their selection of flowers; and if they add leaves to them in the form of good Maidenhair Fern, the effect will be complete. This Fern does so well in small pots and in a cool atmosphere, that it will always stand well to the fore. Palms, *Dracenas*, and *Lycopodiums* are all most useful for table and vase embellishment, and we think there is less caution needed in selecting them than flowering plants, as their leaves are ornamental at all times, and we do not depend on them to come into beauty or usefulness at any particular time. It is surprising how little heat the choicest of them will do with, always provided a high temperature is strictly avoided at all times. Growing plants in much heat at one time, and not being able to keep it up at another, is what proves most injurious. CAMBRIAN.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Winter-flowering Plants.—At Farnboro' Grange a short time ago I noticed the following really good plants for winter cutting and furnishing: Of zonal *Pelargoniums* there was a good collection in from 3-in. to 8-in. pots, some seventy or eighty of them being in bloom. Amongst them, the best for winter were—Mrs. Levers, Lucy Bosworth, Lady Sheffield, Mrs. Holden, and Mrs. Kent, all pinks. Of shades of red there were Dr. Rawson, Rev. A. Atkinson, Sir W. S. Stanhope, Cleopatra, Harry King, Prince of Wales, Lawrence, Harpur, and Vesuvius. Purplish tints were furnished by Irene, Alonza, and Dr. John Denny. White *Vesuvius*, *New Life*, and *Jealousy* were also in bloom. Double-flowered kinds consisted of *Wonderful* and *Vesta*. Portions of these were mixed with dwarf *Chrysanthemums* and other plants, such as *Ageratum* Lady Jane, the latter literally covered with bloom, growing in 4-in. and 5-in. pots. *Bougainvillea glabra*, struck in spring in small pots, had two or three shoots to each plant; these prove useful for hanging loosely over other plants. *Plumbago rosea* and *coccinea superba* are also serviceable in that way. *Euphorbia jacquiniæ-flora*, *Eranthemum Andersoni* and *pulchellum*, *Gardenia florida*, *Ixora Dixiana*, *Centropogon Lucyanus*, *Sericographis*, *Strelitzia Reginae*, *Clerodendron Thomsoni*, *Begonias*, such as *nitida alba*, *Saundersi*, *fuchsoides*, &c., *Linum trigynum*, *Goldfussia anisophylla*, *Calanthe Veitchi*, and *vestita* are all good winter-flowering plants, as are also *Gesneras*. Amongst the last the best were *Cliffoni*, *Van Houttei*, *splendens*, *refulgens*, and *cinnabarina*. Of these, some of the plants were 2 ft. through and as much high. *Gloxinias*, too, are in bloom here all through the year. These were also in and coming into bloom with many other plants for winter display.—W. B. B.

Plants to Grow in the Shade.—"B." asks for (Vol. XVIII., p. 641) the names of plants that will suit a shady situation. There are two which I would like to name, and these are *Habrothamnus elegans* and *Cobæa scandens variegata*. The first is always green and very pretty when in flower, large crimson clusters hanging at the end of every shoot. The *Cobæa* is one of the finest greenhouse climbers we have so far as leaves are concerned, as they are very richly variegated, and as two climbers these plants go well together. Two ends of one of our conservatories are very dark, and although we have tried many plants in them, none have succeeded so well as the two just named.—CAMBRIAN.

Rogiera gratissima.—This is a pretty dwarf plant and well suited for growing in 4-in. and 6-in. pots. Its rosy-pink clusters of flowers contrast finely with its shining dark foliage, and the flowers being fragrant are valuable, either for conservatory or table decoration.—J. S. T.

Azalea Leaves.—H. D. Palmer.—They are evidently much injured by thrips, an insect by which the *Azalea* is particularly liable to be attacked. The plants should be either fumigated by Tobacco, or immersed in some liquid insecticide, such as that mentioned on page 16 of the last number of THE GARDEN. Flowering shrubs are treated of in another column.

Growing Brunsvigia.—Will some kind reader of THE GARDEN tell me how to grow a Lily called *Brunsvigia Josephine*?—S. N., Luton.

Alocasia Culture.—When shall I start, and how grow an *Alocasia*, now dry in a large pot?—S. N.

GARDENING FOR THE WEEK.

Flower Garden.—Where tender plants are still extensively used for bedding purposes, the principal work in this department will be the introduction of choice, and scarce stores into heat for giving early cuttings, and the sowing of seeds of such things as *Wigandias*, *Echeverias*, *Acacia lophantha*, and other tender sub-tropicals, which take a considerable time to make strong plants fit for producing an immediate effect. Look over plants in cold pits and frames; keep them on the dry side, free from weeds and decaying matter, and ventilate by tilting the lights at the back when the weather is mild. Get all vacant beds edged and dug. Be sparing in the use of strong manure, and have some kind of covering ready for placing over advancing bulbs in severe weather.

Hardy Flower Garden.—The greatest charm of an English garden at this dull season is well-kept turf and gravel, with evergreen and deciduous trees and shrubs arranged at distances that will allow full and natural development without crowding or choking each other. In large places of this kind we find many nooks and corners adapted for the growth of the finer kinds of herbaceous plants and dwarf flowering shrubs, and as this is a favourable time for preparing the ground, the planting of *Pæonies*, *Anemones*, *Larkspurs*, *Rudbeckias*, *Day Lilies*, and a host of other beautiful plants may be proceeded with at once. For giving life in the autumn a good stock of *Gladioli*, *Tigridias*, *Cardinal-flowers*, blue *Salvias*, and single *Dahlias* should be provided. For making groups of hardy foliage the Japanese Maples, *Aralia Sieboldi*, *Acanthus* of sorts, *Polygonums*, and Fortune's *Mahonias* are unsurpassed, and give very little trouble after they are well planted. As a single group on the lawn a centre of this *Mahonia* edged with *Viburnum plicatum* is chaste and beautiful. A light rich soil suits them best, and *Lilies*, *Gladioli*, or *Lobelias* may be grown amongst them.

Greenhouse.—Winter-flowering Heaths and early *Epacris* that have done flowering may be cut back and placed in a newly started Vinery, where they be lightly syringed and sparingly watered. Look over *Fuchsias*, and see that the roots do not perish from want of water. Place a few of the most promising in heat for giving cuttings, and pot on autumn-struck plants, using light rich soil, clean pots, and good drainage. Give them the benefit of warmth and moisture in a light pit, and water sparingly until they have taken to the new compost. Remove and destroy soft-wooded plants not wanted for stock to make room for forced bulbs, *Azaleas*, &c. One of the finest things for early forcing and cutting is *Azalea mollis*, and the beautiful *Rhododendrons*, of which *præcox* is the type, are also worthy of extensive cultivation, as they can be had in flower by Christmas in a temperate house. Where cut flowers for bouquets or rooms are largely used, roots of the early-flowering section of *Gladiolus* may still be potted, six or eight bulbs in 6-in. pots. Plunge in leaf-mould in cold pits until they have filled the pots with roots, then expose to light and air, and treat as *Hyacinths*. *Byzantinus*, *cardinalis*, *Colvilli albus*, and *insignis* are good kinds. *Camellias*, either in pots or planted out, will now take good supplies of water; good liquid from the tank diluted with warm soft water will stimulate the roots and improve the colour of the foliage, which must be kept clean.

Stove.—Prune, clean, and regulate hard-wooded climbers, such as *Allamandas* and *Bougainvilleas*, also *Stephanotis* that have been kept dry through the winter. Give *Poinsettias* and the fine old *Euphorbia jacquiniiflora* a short rest in an intermediate temperature preparatory to cutting back for propagation. Cut the stems of the latter into short lengths, insert them in threes in 4-in. pots, plunge in the propagating pit, and give but little water. Examine *Gloxinias* and remove any that are starting into growth to a warm house; also a few roots of that most useful table and decorative plant, *Caladium argyrites*; water sparingly, and give them the benefit of a little bottom heat by placing them on the tan or leaves in front of a succession Pine pit. A few pots of *Eucharis* should be taken in at regular intervals. If well established and rested they will stand a good bottom heat and plenty of tepid liquid. Encourage soft-wooded winter-flowering plants to make early growth for cuttings. *Sou-tellaria mocciniana*, *Thysacanthus rutilans*, and *Libonias* should be propagated and grown in quantity.

Cold Pits.—Hardy *Primulas*, alpine *Auriculas*, *Pinks*, *Carnations*, and many other beautiful spring flowering plants which suffer more from wet than cold will well repay careful attention to cleanliness and change of position. On a bright day when the lights can be thrown off let every plant pass through the hands, remove weeds and other matter from the surface of the pots, spread a few fresh ashes on the bottom of the pit, wash the walls with quicklime and rearrange as thinly as space will allow. Give air every day and protect from severe frost and rain.

Orchard House.—If *Peaches* and *Pears* are still out-of-doors, no time should be lost in getting them placed under glass. Examine

the bottoms to see that the drainage is right, and wash the pots, also the shoots, the latter with soapy water or weak Gishurst. If the wood is still too much crowded, thin out to make room for summer growth, water freely when necessary and syringe overhead on fine mornings, that is, assuming the house is fitted with pipes for keeping out frost, when the trees are in flower. On the other hand, if this important provision has been neglected, defer syringing, water moderately, and retard the flowering by liberal ventilation. Top-dress the *Strawberries* and place batches of one or more kinds on shelves in the lightest and most airy part of the house. Water regularly, but do not place saucers under the pots.

Cherry House.—Where the early house was closed last month, the buds on these excitable trees will be swelling fast, but no great change must be made in the temperature for some time. In severe or cold wet weather, when fire-heat is needed, 40° at night and 50° by day will be quite high enough, although by careful attention to external conditions 5° to 10° more may often be secured under very moderate fire-heat with a circulation of air without detriment to the trees. Syringe every fine morning, see that the roots are properly supplied with water, and fumigate the house before the blossoms open.

Strawberries in Pots.—Keep the earliest plants near the glass, ventilate freely through the early part of the day to prevent the flower-stems and foliage from becoming "drawn," and shut up with moisture to help them forward on fine afternoons. Top-dress and take in fresh supplies at regular intervals. Avoid exciting the roots in advance of the crowns. Aim at a night temperature of 45° with 10° more by day and syringe well to keep down red spider.

Melons.—A few seeds of some early kind may now be sown singly in small pots and placed in bottom heat near the glass. If a hot water pit is not at command, a good manure bed for a small frame must be made up in a dry, sheltered situation, but with full exposure to the south. A good body of spent tan, free from worms and woodlice, placed in the frame, will keep back rank steam and form a suitable plunging material for the small pots. A nursing frame of this kind, if well lined and covered at night, will also do for raising *Cucumbers* from seeds, or by propagation from clean healthy cuttings. By the time the plants get into rough leaf, have the fruiting pits or house ready, with the bottom heat on the decline from 90°. Large pots answer best for early work, as they can be placed on fixed supports, and the fermenting material, consisting of tan or sound Oak leaves, can be turned and renovated at pleasure.

Vines.—Where the buds on the early-started Vines are pushing freely syringing may be somewhat relaxed, and when the bunches become prominent it may be discontinued, but atmospheric moisture must be produced by damping all available surfaces and turning the fermenting material on the internal borders. Examine the latter, and water with diluted liquid at a temperature of 80°. Rub off all side shoots before they become too far advanced to rob the principal breaks, and tie down the points of vigorous young canes where the back buds show signs of weakness. Aim at a night temperature of 58°, run up to 68° by day, and ventilate under gleams of sunshine, when air can be admitted without causing a draught. The second house may now be closed under treatment precisely the same as that recommended for the early Vines. Syringe well, and see that the inside borders are properly moistened at the outset. Cut *Lady Downes* and other late kinds and remove them to the Grape room, where they will keep better than if left hanging on the Vines. Stop and tie down pot Vines. Feed the roots with generous liquid, and renovate fermenting material when the bottom heat falls below 70°. Put in eyes from well ripened wood, and keep cool for the present.

Forcing Ground.—Activity in this department will now be needed. With good pits and plenty of fermenting leaves at command, a bed should now be ready for sowing with *Short Horn* or *Early Nantes Carrot*, *Radishes*, a pinch of *Celery*, *Brussels Sprouts*, *Veitch's Autumn Giant*, and *Walcheren Cauliflower*, for succeeding autumn-sown plants. Plant *Potatoes* in frames, also under warm walls where they can be protected from frost when they appear above the ground. Sow seeds and strike cuttings of *Tomatoes*. Pot on autumn-struck cuttings, and keep them near the glass. Sow *French Beans* in pots and boxes, and place them on shelves or other convenient places in Pine stoves. *Osborn's* and the fine old *Sion House* are suitable for forcing. Make up *Mushroom* beds, using plenty of good lumps of turf with the manure, beat very firm, and spawn when the heat has declined to 80°. Take in regular supplies of *Rhubarb* and *Seakale* roots; also a few roots of *Chicory* for giving a supply of salad when *Endive* is scarce. Keep the latter protected from frost and damp, and blanch as required for use. In the kitchen garden plant *Mazagan Beans*, sow *Early Horn Carrot* and *Radishes* in a dry, warm border, plant *Shallots*, earth up *Cabbages*, and protect *Celery* from frost and wet.—W. COLEMAN.

Woodland Work for January.

Though the late heavy and almost continuous rain has considerably hindered the planting upon the heavier soils, the season has been, on the whole, a favourable one for making good progress with the work upon all lighter lands. Where the work is still being carried on, the plants should be kept as short a time as possible out of the ground, and if the weather is at all severe the roots should be carefully covered. Nor at this season of the year, when sharp frosts may be expected to set in, should plants be removed from well-sheltered nursery beds to bleak and exposed situations. Many failures are the result of carrying on the planting of clay lands in wet weather. The stiff clay will not readily settle closely around the roots of the trees, and violent treading under such circumstances reduces the soil to the worst possible conditions for the support of the tender rootlets which have hereafter to find their support in it. Steam cultivation has to a considerable extent succeeded to other methods of preparing lands for planting, and under proper supervision this may become at once the most efficient and the most economical method. The facilities which this system affords for deeply stirring a soil without bringing any of the inferior subsoil to the surface is one of its greatest recommendations. And in the case of a thin soil, which it may be thought necessary to break up and deepen before planting, steam affords a ready and speedy method of accomplishing this. By executing this work some months before the time of planting, a proper aeration of the soil takes place. If a fallow crop can be afterwards taken from the land it may be reduced to a condition well suited to the rapid growth of young trees. But where spring planting is intended a rough furrow will leave the soil in the best possible state to be acted upon by the weathering influences of the atmosphere and of frosts. Trenching, though an expensive method of preparation for tree planting, is one of the most efficient modes, and in combination with tolerably deep draining it will effectually get rid of the rushes. Continue to trim, slash, and plant Hawthorn hedges. Also attend well to watercourses in plantations. Fell and remove hedgerow timber while this can be done without injury to the crops, and push forward the falling and clearance of underwood and the thinning of plantations. Hardwood should be thinned gradually, and this should be proportioned to the exposure of the plantation. A permanent check to the growth of the stores may be caused by too heavy a thinning at one time. Roads for clearing the woodlands should be well brushed with small faggots before the cartage commences. About forty of these to a rod in length will generally make a firm road such as will serve for the carriage of timber. Collect Fir cones wherever these can be met with. Seeds which were committed to the rot heap in the autumn will now require attention. Nursery beds which have been cleared of plants may receive a deep trenching or other preparation for the succeeding crop. Where the soil is suitable a crop of evergreen trees may succeed the vegetables which are grown as a preparation of the nursery; the land being afterwards deeply cultivated, these may be succeeded by deciduous trees. It is not well to keep the nursery in too highly manured a state. After a good dressing at the commencement, such mixtures as road scraping, fresh lime, and lime rubbish,

rotted weeds, leaf mould, rotten turf, bone dust, and the refuse of the nursery will be generally found sufficient to maintain fertility.

Pluckley, Kent.

A. J. BURROWS.

DILLENIA SPECIOSA.

Of all trees generally grown in India for ornamental effect this is one of the handsomest. Some idea of its beauty may be formed when we state that the flowers, which are white with yellow stamens, have a diameter of no less than 9 in. The foliage associated with such



Dillenia speciosa.

beautiful flowers is also extremely handsome, so much so, that young specimens well grown in this country make useful decorative plants. It was introduced about eighty years ago, and has since been well known in gardens, though not often seen in flower. Seeds of it are sometimes received, and usually grow without difficulty; cuttings also made of the half-ripened wood are found to strike readily. It grows well in light sandy loam under the usual stove conditions, and, if freely exposed to light for the purpose of ripening its wood, it may be expected to flower, as indeed it has already done, but we do not remember seeing it in bloom lately. This tree is found in all tropical India, Ceylon, and in the Malay Islands and peninsula. The young calyxes of this and another species have a pleasant acid taste, and are used in curries. The fruit, though almost too acid, is still

eaten with sugar, and the juice mixed with water is employed as a cooling beverage during fever. Its wood is used for gun-stocks. Many other plants belonging to the Order are remarkable for the magnificence of their foliage and flowers, and a number are now in cultivation. We have two species of *Candollea*, several of *Hibbertia*, one *Delima*, and lastly a fine plant, *Wormia Burbridgei*, introduced by Mr. Burbridge. It may be well, too, to mention the beautiful *Acrotremas*, which hitherto have baffled the cultivator to keep long, though one species at least flowered at Kew some years ago.

R. I. L.

ORCHIDS.

ORCHIDS AT SILVERDALE LODGE, SYDENHAM.

ONE of the most evident proofs of the rapidly increasing popularity of Orchid culture is afforded by the numerous collectors that are being formed, especially in private gardens, in the neighbourhood of London. Amongst others, that of Mr. Walter Cobb, which has been formed within the last dozen years, is now becoming famous, not only for the number of species and varieties which it represents, but also for the skilful culture which is carried out in it. A noteworthy fact, too, is that the proprietor has gained his cultural experience from his own observations alone. A primary consideration in successful Orchid culture is suitably constructed houses, and here may be found houses and pits, about a dozen in number, well planned and arranged in accordance with their ultimate requirements. They are all span-roofed with a moderately sharp ridge angle, and all are glazed with large panes of good clear glass. The ventilation, too, is excellent, the lowermost ventilators being made to open on a level with the hot-water pipes; therefore the indraught of cold air is slightly warmed before it comes in contact with the plants. None of the houses are maintained at such a high temperature as is generally considered to be essential for successfully growing the kinds from the hottest regions, though the plants, especially some of the *Saccolabiums*, *Aerides*, *Vandas*, and *Phalaenopsis*, compare favourably with any we have seen elsewhere.

The section now generally known as cool Orchids is Mr. Cobb's specialty, and certainly he has attained remarkable success in their culture.

The *Odontoglossums* are particularly fine, and we doubt if there exists in cultivation more vigorous plants of the lovely *O. vexillarium* than we saw here grown in a cool house from imported plants. One we noticed possessed a break consisting of fifteen broad and healthy leaves. When these plants of *O. vexillarium* are in flower they must produce a fine display, and Mr. Cobb assured us that he possesses some of the finest forms extant. Though the cool system of growing this Orchid is not generally practised, we are convinced that it is the correct one, and certainly one that is less troublesome than the warmer plan, as the plants are not nearly so subject to the attacks of thrips and other insect pests. Its beautiful congener, *O. Roezli*, and its white variety are grown in a temperature a trifle warmer, and the plants certainly indicate that their requirements are well met. That somewhat fastidious species, *O. Phalaenopsis*, is grown well by Mr. Cobb in suspended pots hung close to the roof, which seems to be its proper place. *O. crispum* (Alexandree) and *O. cirrhosum* are numerously represented by unusually fine examples. The varieties, too, of the former were among the finest we have seen—one particularly so, as the flowers were as much as 3 in. across, with broad pure white sepals, with beautifully crisped margins and large lips, with a dash of gold and conspicuous blotches of chocolate. Some of the spikes on the plants of *O. crispum* were branched after the manner of those of *O. Pescatorei*, and this fact alone affords a proof of how well they thrive. The large plump bulbs of *O. cirrhosum*, the majority developing stout flower-stems, also showed how well that species succeeds. That rare and difficult to manage species, *O. coronarium*, is successfully grown on small vertical trellis-work enclosing a compost of peat and Sphagnum Moss, &c. The even more rare *O. minutum*, a near neighbour of the preceding, is represented by a thriving plant, with plump bulbs, which no doubt will soon develop flower-spikes. It is grown much in the same manner as *O. coronarium* and in the same temperature—a cool, moist house. We have never seen finer bulbs of *O. nebulosum* than we saw in this collection, and so plump and well ripened were they, that the flower-spikes which they will eventually produce must be a sight worth seeing. The plants are grown in 4½-in. and 6-in. pots, and the bulbs are raised well above the surface on a layer of growing Sphagnum Moss, which keeps the soil sweet.

Among other noteworthy Orchids in flower were *Dendrobium lituiflorum*, a charming species, reminding one of *D. nobile*, but the flowers are smaller and different both in form and colour. The sepals are a dark purple, and the lip pure white with a border of purple. It is a most desirable kind, as it continues a long time in perfection,

and flowers so much earlier than *D. nobile*. *D. moniliforme*, also called *Linawianum*, was just expanding its buds, and is likewise a valuable early-flowering kind. The lovely *Lælia anceps* was represented by some fine flowering specimens of the typical form, and also by plants of a smaller size of the rarer forms, including the chastely beautiful pure white variety. In the warmest house was a superb plant of that scarce Orchid, *Saccolabium giganteum*, or *Vanda densiflora*, as it is sometimes called. It bore three large spikes of fully expanded blossoms, produced on a single break bearing a dozen leaves. The variety represented is one of the finest we have seen, the large violet lips of the blossoms being particularly brilliant. *Colax jugosus*, a fine Orchid too little known, was flowering finely in the cool house. The flowers are so distinct in colour and form from those of most other species, that it is desirable on that account alone. They measure about 1 in. across, and are wax-like in texture, ivory white, and barred heavily with conspicuous bands of deep violet-purple. It is a terrestrial kind which succeeds well in pots in a cool *Odontoglossum* house. The various species of *Cymbidium* will shortly make a fine display, the new and still rare *C. Lowianum* being especially fine; on one spike of this there were a dozen buds almost expanded. The Australian *Dendrobium superbiens* was one of the showiest Orchids in flower, a specimen of it bearing two or three long arching spikes of rich amaranth blossoms indicating admirably how successfully it is grown here. It is, however, not a difficult kind to manage, and it certainly well repays a little special attention, inasmuch as it has the desirable quality of continuing a very long time in flower. Of *D. Goldieanum*, a near relation of *D. superbiens*, we noticed a well-grown plant, but it was not in flower. The lovely *D. primulinum* and the variety *giganteum* were flowering finely in baskets suspended close to the roof—the proper position for this and similar species. On *D. Wardianum*, numerous flowers were expanded, but later on they will be finer and more numerous, as the growths of the latest plants are long and well ripened. Mr. Cobb is particularly successful with the nigro-hirsute section of *Dendrobium*, which are reputed difficult to manage, for he has *D. infundibulum* with stout stems upwards of 2 ft. in height, and its congener, *D. Jamesianum*, was equally vigorous and flowering finely. Both kinds are grown in pots, under which condition they appear to thrive admirably. Besides the *Odontoglossums* in flower mentioned above, we noticed the rare *O. polyanthum*, to which was awarded a first-class certificate by the Royal Horticultural Society last April. It is somewhat in the way of *O. triumphans*, but the flowers are of a much darker hue. Though not a showy kind, it is desirable, on account of its flowering in midwinter as well as in spring. We were too late to see the display of bloom on the numerous fine plants of *Oncidium Rogersi*, which are grown in pots and pans suspended near the glass, a condition which evidently conduces to the production of stout well-ripened bulbs. The beautiful *O. Marshallianum*, which is generally grown in an intermediate temperature, is grown here with the cool *Odontoglossums*, a mode of treatment which appears to be the correct one, as the size of the bulbs abundantly showed. When the plants were grown in a hotter house, the bulbs did not attain beyond medium size; but in the cooler house they have become unusually large and well matured. Thus, the difference in the size of the bulbs tends to show that a cool temperature is best for this species. Throughout the collection there are several similar instances of Orchids that are generally subjected to a high temperature flourishing in a cool and moist atmosphere, which is being continually changed by the currents of warmed air indrawn over the heated water-pipes, and so deprived of their rawness. Even on the cold, cheerless day that these notes were made the ventilators were open, though the atmosphere was such as would be termed by cultivators a growing temperature.

One or two among the remarkably fine collection of *Pescatorea*, *Bollea*, &c., were in flower, including the rare *P. Klabochoorum*, with its waxy white plum-tinged flowers. These plants are grown in a moderately warm, but pleasantly moist atmosphere, which seems to be highly conducive to their growth, some of them being as fine as we have ever seen them. That almost perpetual-flowering Orchid, *Oncidium Weltoni*, was very showy, with its large spikes of pretty purple flowers. The showiest Orchids of all, however, were plants of *Calanthe Veitchi*, than which we have rarely met with better grown, or more finely flowered examples. They were in 4½-in. or 6-in. pots, and the large bulbs they produced in these small pots were remarkable. The plants appeared to be potted in a rich loamy soil, which was completely ramified with roots. Over-potting, which is the rock on which the majority of beginners in Orchid culture split, is carefully avoided in this collection, nor is the opposite extreme tolerated, but in all cases the soil and the plant are so nicely balanced, that the one is not unduly out of proportion to the other; therefore, the soil does not contain more moisture than is required by the plant, thereby obviating that stagnation of moisture which soon renders the soil sour and unfit for the tender rootlets to thrive in.

W. GOLDRING.

REPOTTING COOL HOUSE ORCHIDS.

GREAT diversity of opinion exists even among good Orchid growers as to the proper time for repotting *Odontoglossums*, *Masdevallias*, and other occupants of the cool house. For my part, I have found it best to perform that operation as early as convenient in the present month, or in the beginning of February, as the plants are less liable to suffer by the change at that season than at any other. These plants now begin to root freely, and I consider it important that such of them as require it should be repotted before the new roots work into the old material. If repotted at the time recommended the risk of breaking the new roots will be avoided and the plants will have the new material to root into at once; thus they will pass another year at least without having their roots disturbed. Another advantage of potting them early is, that the moist, shady condition of the house, so conducive to the healthy root action of these plants and so favourable to their being kept slightly drier in the pot after repotting, without shrivelling, can be secured without any trouble, the temperature outside the house being favourable to it. It may be said, the main object being to repot these plants when they are beginning to grow and root, that, as *Masdevallias* grow the greater part of the year, and most of the cool house *Odontoglossums* make two sets of pseudo-bulbs in the year, the plants will be in a proper condition for re-potting when the growths they are now about to make are finished. Such is not, however, the case, for then, the sun being bright and the weather warm, it will require all one's care to keep the plants plump, even although they have not been disturbed. If repotted at that season, it would be next to impossible to keep them in condition. I dislike allowing any Orchid to shrivel on any pretence. It is often done, with the idea of ripening the growth and inducing the plant to flower, but wherever an Orchid is allowed to become emaciated it is at the expense not only of the expected bloom, but also of the next growth. The chief office of the mature pseudo-bulb is to keep the incipient bud plump, and at the proper time assist in its growth and nourishment until it can support itself by making roots. Where old pseudo-bulbs are allowed to shrivel the reverse of this takes place, and instead of nourishing the bud they weaken it. On the health and plumpness of the bud or eye depends in a great measure the size and strength of the pseudo-bulb it is intended to form. With the intermediate house, Brazilian Oncids, and other strong growing plants, the ill effects of shrivelling are not so bad or so noticeable, but the *Odontoglossums*, &c., from cool moist latitudes are particularly impatient of it, and in consequence I have frequently seen large pseudo-bulbs produce successors not one half their own size. On the other hand, I have found that when these plants are grown cool and kept plump, each succeeding new growth is larger than the preceding one, until by exuberance of strength they throw out several leaders. When re-potting the cool-house Orchids, those with advanced flower-spikes should be left and attended to after flowering, but re-potting now does not in the least affect those with flower-spikes just appearing.

The Proper Material in which to pot most cool-house Orchids is light fibry peat and green, living Sphagnum Moss in about equal proportions. This is pretty generally understood, but I find that among amateurs a great mistake is often committed as regards the preparation and using of the compost recommended. The practice is generally to break up a certain quantity of peat into small pieces, to place a like quantity of Sphagnum Moss on the top, and to turn the whole over several times until it is thoroughly mixed. This is wrong; so prepared, the compost when used soon gets sour if it is kept as moist as it should be, and when it is allowed to get dry it is not easy to wet it thoroughly again. Cool Orchids like free drainage, so that the water may easily run through the material around them. It is of little use to properly drain the pots and afterwards use in potting a material which is too close and retentive when watered. I always have the peat prepared by having it broken into pieces about 3 in. or 4 in. in diameter, afterwards breaking it into smaller lumps when required as the work progresses. I keep the peat and Sphagnum on the bench close at hand, but not mixed, and work them in separately, only using the dry, fibry lumps of peat, and having the fine part of it removed occasionally; this is much better than sifting. The Sphagnum Moss I merely have roughly picked over in order to remove sticks, Sedges, &c., but I never have it scalded (as some do, in order, as they say, to kill the insects) on any account. Scalding kills it and prevents it from making that healthy, moist, green covering which is so conducive to the health of the plants, particularly in summer.

Fibry Peat of the proper kind is very preservative as regards the roots, and in potting them I always like to place a good lump of it just under the plants, so as to bring it up to the proper height, and to form a sort of cushion around which the roots may be arranged,

afterwards placing a few good lumps immediately around the plant before working in any Sphagnum. A good solid piece under the plant is of great use in keeping the roots from getting bunched up in the unnatural manner they usually are in the hands of inexperienced potters. Any one who has been in the habit of potting his cool house Orchids in fine mixed material will soon see a marked improvement in them if he pots them in rough peat and Sphagnum as recommended. Only last week an Orchid grower told me that his plants had always been potted in previously mixed material until he saw me potting mine last year; he then potted his in a similar manner, and the plants improved beyond measure, the soil never becoming sour or sodden as before. The pots for use should be clean, and if new they should be soaked in water and allowed to drain before being used; afterwards they should be crocked about two-thirds of the way up for drainage. Where the material is used rough and free from fine soil, the pieces used being large in proportion to the size of the pots, a layer of Sphagnum on top of the drainage is not necessary. I am happy to say that my experience in cold house Orchids since I so strongly advocated cool treatment in this journal some years ago has fully borne out my former views. A temperature of from 45° to 55° in winter is not only enough, but even a few degrees higher of artificial heat is positively injurious. Last year, not having room in the cold house for a number of strong plants of *Odontoglossum*, I placed them in a warmer house. Those in the warm house are now not nearly so strong as those in the cold house, while their leaves are thin and papery, and they have an unthrifty look about them; those in the cold house, which has sometimes been down to 40°, are plump and shiny, their leaves thick and green, the pseudo-bulbs and leaves of many of the *O. Alexandre* and *O. Pescatorei* being tinged with that purplish hue so indicative of these plants being treated just as they require. Grown cold, these plants are indeed easy to manage; in heat they are an endless trouble with but poor result.

JAMES O'BRIEN.

NOTES ON ORCHIDS IN FLOWER.

Saccolabium giganteum.—In the Victoria and Paradise Nurseries, Upper Holloway, Mr. B. S. Williams has an unusually fine display of bloom of this beautiful Orchid. Several dozens of specimens are flowering simultaneously, some bearing as many as seven spikes on one plant, and a few have three or four spikes on a break. Most of the plants are attached to suspended blocks, a condition under which they seem to thrive admirably, but most probably they will, in due time, be transferred to pots or pans, which, without doubt, is the best system of cultivating this Orchid. Amongst such a large number of plants there is necessarily a great variation with regard to the depth and colour of the flowers, some being of a pale violet hue, whilst others, on the contrary, are of a very deep shade.

Fine Variety of *Odontoglossum cirrhosum*.—One of the finest cool Orchids now in flower in Mr. B. S. Williams' nursery, Upper Holloway, is a variety of *O. cirrhosum* named *Klabochorum*. Its flowers are considerably larger than those of the ordinary form, the sepals being more attenuated and curled, while the spottings are more pronounced, and the golden hue of the crested lip much brighter. Among the large number of the more common forms there is also a striking variation with regard to the size of the blossoms and their markings, but none are so distinct as that we have mentioned.

***Masdevallia towarensis*.**—In the same nursery there is a fine display of this lovely little Orchid—one of the rarest of the *Masdevallias*. The plants are remarkable for their vigorous health and profusion of flowers, several of the flower-stems having produced three and four blossoms each and of a larger size than usual. The plants are in pots in a moderately cool house in company with other *Masdevallias*, among which we noticed in flower *M. Veitchi*, *M. amabilis*, and *M. ignea*, all extremely pretty and desirable kinds, besides the singular little *M. Wagneri*, with its triangular blossoms and yellow, tail-like sepals.

***Stenorhynchus speciosus*.**—This showy terrestrial Orchid is not often seen outside a botanic garden, though it deserves to be grown by every one. It has broad pale green root leaves with a dash here and there of a silvery hue. The flower-spikes are erect and grow about 1 ft. in height; the flowers, as well as the membranous bracts that subtend them, are of a beautiful deep coral colour, and very attractive. It is grown best in pots in a loamy soil and placed in a moderately warm atmosphere. We saw some excellent flowering specimens of it the other day in Messrs. Henderson's Nursery, Maida Vale. It is one of the most alpine of Orchids; is frequently found in unusually cold localities, the collector Schlim having found it on Sierra Nevada of Santa Martha at about 10,000 ft. elevation, where the temperature often falls below zero.

Varieties of *Odontoglossum Alexandræ*.—At the Pine-apple Nursery, Maida Vale, there will shortly be a fine display of bloom on a large number of plants of this beautiful Orchid with which a spacious house is filled. We have seldom seen so many flower-spikes developed on such small plants, a circumstance doubtless attributable to the cool and moist atmosphere of the house, which is maintained at a much lower temperature than is usual. The collection represents a great number of varieties, amongst which the most noteworthy at present in flower is one called *luteolum*, the flowers of which are suffused with a decided yellow tinge, rendering it very distinct from other forms.

Varieties of *Cœlogyne cristata*.—It may not be generally known that there are two distinct forms of this popular Orchid differing from each other in the colour of the crest of the lip. One has a bright deep orange crest, while that of the other is pale clear lemon. Both forms are now finely in flower in the Pine-apple Nursery, Maida Vale.

***Phalænopsis* at Clapton.**—A spacious house in Messrs. Low's nursery is entirely filled with a large importation of *P. Schilleriana*, and the forms *Lobbi*, *Veitchi*, &c., will soon be very attractive, as nearly all the plants, numbering some hundreds, have produced flower-spikes, some of which will bear a large number of flowers. Seldom can such an extensive display of this lovely Orchid be seen; it will, therefore, be well worthy of a visit when at its best.—W. G.

***Lælia peduncularis*.**—For the past three weeks the show of this Orchid at the York Nurseries has been perhaps unrivalled in the history of the species, and is likely, we understand, to continue for at least three weeks to come. Fancy 300 or 400 slender flower-stems from 9 in. to 15 in. high, each bearing from six to ten or twelve flowers in a more or less dense panicle, and some idea of the beauty of the display will be gained. The individual blossoms are from $\frac{1}{2}$ in. to 2 in. across, and vary in colour in different plants. Some are white, others shaded blush, others pink or deep rose, while all have a black-purple centre or "eye," caused by a heavy blotch on the labellum, which contrasts charmingly with a touch of pale sulphur and the delicate tints of the sepals and petals. The individual flowers of this species do not appear to continue so long as those of other *Lælias*, but their profusion and compactness largely make up for this. Nothing can apparently be more healthy than the present condition of the plants after two years' cultivation, or give better promise for the future. *L. peduncularis* and *L. rubescens* appear to be extreme forms of one species.

***Arundina bambusæfolia*.**—This plant is well worth growing, not only for its beauty, but for the persistency of its blooming. Although the *Lælia*-like flowers last but two or three days, yet they are constantly followed by others from the end of the same stem. I have a plant which has hardly been a day without a flower open upon one or more of its four growths for four months, from August to November. Now it is showing growth strongly from the base of the old wood. It has been potted, as advised by Mr. Freeman, in "good garden soil," and grown in a warm house. Is this the best way in which to treat it?—W. B.

Orchids in Flower at Dr. Paterson's, Fernfield, Bridge of Allan:—

<i>Angraecum sesquipedale</i>	<i>Epidendrum exaltum</i>	<i>Odontoglossum Cervantesi</i>
<i>Brassia Lawrenceana</i>	fragrans	bicifrons
<i>Cattleya Trianae</i> (very fine var.)	erectum	Uro-Skimmeri
bulbosa	<i>Gongora Ruckeriana</i>	Alexandræ
<i>Calanthe Veitchi</i>	atro-purpurea	cordatum
vestita rubra-oculata	<i>Lycaste Skinneri</i>	nebulosum
v. lutea oculata	<i>Lælia anceps</i>	constrictum
<i>Cœlogyne</i> , sp.	var. <i>Barkeri</i>	Londesboroughianum
<i>Cypripedium insigne</i>	peduncularis	<i>Oncidium ornithorhyn-</i>
<i>Sedeni</i>	Dayana	chum
villosum	albida	chetrophorum
venustum	var. <i>bella</i>	aureum
<i>Dendrobium aureum</i>	<i>Masdevallia towarensis</i>	<i>Pilumnus fragrans</i>
fimbriatum giganteum	melanopsis	<i>Sophranitis grandiflora</i>
f. oculatum	amabilis	<i>Cymbidium giganteum</i>
<i>Wardianum</i>	igneæ	<i>Vanda tricolor</i>
<i>Epidendrum ciliare latifolium</i>	<i>Mesopidmum vulcanicum</i>	var. <i>insigne</i>
rhizophorum	Maxillaria, sp.	var. <i>Patersoni</i>
	<i>Neottia picta maculata</i>	<i>Zygopetalum Mackayi</i>
		M. Dalvey's var.

Orchids at Bradford Peverill.—I noticed in Mr. Middleton's garden here the other day plants of *Calanthe Veitchi* and *vestita rubra* in 6-in. pots, with spikes 4 ft. in length full of bloom, from three to six spikes being on each plant. I also noticed two fine specimens plants of *Dendrobium nobile* just coming into bloom, the buds on which might be counted by hundreds; also *Cypripedium barbatum* and *insigne* in bloom and *Lælia anceps*; *Lycaste Skinneri* was pushing up four flower-spikes from one bulb. Amongst other Orchids showing for bloom was a fine *Dendrobium Wardianum*.—A. C.

***Epidendrum varicosum*.**—This pretty and delightfully fragrant Orchid is now in flower with Sir Charles W. Strickland at Hildenley. The plant has dark green, flask-shaped pseudo-bulbs, about 8 in. in height, each bearing two or three leaves. The flower-spikes, which, together with the backs of the petals, are of a bright emerald-green, rise to a height of about 8 in., each bearing from twelve to fifteen flowers; sepals and petals chocolate; lip white, changing to yellow; column white, blotched with purple. The flowers are very pleasing, but their principal charm is their exquisite violet-like perfume, one spike being sufficient to scent a large room. It thrives in an unusually cold house.—J. O'B.

***Dendrobium Cambridgeanum*.**—*T. L. C.*—It flowers from the pseudo-bulbs in process of maturation, before, in fact, the leaves become yellow. No sooner do the flowers fade than the leaves lose their chlorophyll, but it does not follow that every good-sized bulb flowers. Some vary according to constitution, and are not so free-flowering as others. Again, proper culture has something to do with inducing the variety to push flower-buds from the nodes. This, however, happens with all *Dendrobiums*. A check at the proper time will cause many plants to produce flowers.—J. ANDERSON.

—This beautiful Orchid blooms, in fact, on the young growth, *i.e.*, the last made growth with leaves on it. It blooms occasionally on the last year's growth, but that is an exception. Its time of blooming depends on the rapidity with which it has been grown; sometimes it does not bloom until summer. It shows bloom on the young pseudo-bulbs between the leaves.—J. O'B.

Potting and Temperature.—"Perplexed" had better report his Orchids now; as they are not established, the shift cannot injure any of them. See article on potting cool house Orchids in this week's issue. *Epidendrum vitellinum*, *Odontoglossum pulchellum*, *O. Rossi majus*, *O. cirrhosum*, *O. Lindleyanum*, and *Masdevallia coccinea* belong to the cool house, and require a temperature of from 45° at night to 55° by day. *Oncidium sphacelatum*, *O. leucochilum*, *Cymbidium alofolium*, *Lycaste* (*Maxillaria*) *Harrisoniæ*, *Cypripedium Pearcei*, and *Trichopilia tortilis* require a temperature of from 50° to 60°, and a drier atmosphere than the cool house. The *Dendrobium* is probably *D. Pierardi* or one of the *D. transparens* group; it will succeed along with the last named, and if not showing any young growth it should be kept dry. If growing it should be watered.—J. O'B.

Second Flowering of *Dendrobium chrysanthum*.—It is not at all unusual for this plant to flower a second time as described by "W. B." (p. 6). The plant after flowering this time should be treated as a growing plant; it will then bloom again probably during the summer.—J. O'B.

THE KITCHEN GARDEN.

ASPARAGUS ON THE FRENCH PLAN.

REFERRING to the size of *Asparagus* as grown in France and England, most people interested in the matter who have visited Covent Garden Market for the first time in spring have been amazed at the immense size of this vegetable as imported from France. I, in common with many more gardeners, was very sceptical as to whether it would be possible to grow such *Asparagus* in England, even though we were told in the "Parks and Promenades of Paris" that it could be, and also the way in which it could be done. Soon after reading that work on its first appearance I determined to make the experiment, and the opportunity of doing so also presented itself under favourable circumstances in the south of England. A piece of land to our liking was selected, a deep, yellow, sandy loam, inclining to clay and rather moist, though drained and on a gentle slope to the east. This was trenched about 2 ft. 6 in. deep and received a heavy dressing of stable manure, with half-decayed leaves intermixed, well incorporating the whole with the soil as the trenching progressed; after trenching, the whole piece laid some months to settle, or indeed until the time when planting had arrived. When about to plant, which was not until the young *Asparagus* had grown some inches, the piece of ground received another dressing on its surface of rotten manure and leaf-mould, which was dug in. It was then marked off in lines 3 ft. apart and planted with young *Asparagus* plants the second year from the seed 2 ft. apart in the lines, thus having 3 ft. between the plants one way and 2 ft. the other. The sets were simply laid on the surface with the roots spread out horizontally, and then a portion of soil was drawn over them from the spaces between the rows; thus, when finished, the ground appeared in shallow ridges and furrows from west to east, following the slope of the ground. The plants, being in full growth, were immediately watered, and were occasionally watered during summer. Every winter the whole surface of the ground was top-dressed with a mixture of horse manure and half decayed leaves. Some of the stronger stems of the *Asparagus* received attention as to staking, as is done in the case of herbaceous plants to prevent them from wind-waving or being broken; but the position was a sheltered one, and little staking comparatively was required.

Now for the result. On the third year after planting—the fourth from the seed—we had the satisfaction of cutting as good *Asparagus* as to size as could be seen in Covent Garden; indeed, as to quality it was considered better, inasmuch as it was not blanched, although I am aware that blanching is by some considered to be an improvement. We were satisfied that the wide planting had very much to

do with our success, but more especially the favourable character of the soil and its natural condition as to moisture. We were so satisfied with our success, that we had planned a plantation of *Asparagus* on a large scale on a piece of ground capable of irrigation, but was prevented by unforeseen circumstances from carrying the design into effect. It is probable that the higher average temperature of the south coast of England favoured the experiment, but, from experience in the north near the coast, I feel satisfied that greatly improved results may be expected from improved culture.

I am unable to refer to Mr. Robinson's "Park and Gardens of Paris" at present, but from memory I think he places all the merits of French *Asparagus* to the credit of culture, and I am convinced with justice.

W. D. P. P.

AUTUMN AND WINTER BROCCOLI.

THIS has been a good season for Broccoli of all kinds, where it has had room enough. Veitch's Self-protecting Autumn Broccoli has been producing white close handsome heads for these last two months side by side with the Autumn Giant Cauliflower sent out by the same firm some years ago. Later on will come Snow's Winter White, which when true is an excellent Broccoli. To make sure of having a supply when wanted, it is best to make at least two sowings—one in March and another towards the end of April, and to plant out some of each sowing. In early districts a further sowing may be made in May, or else the later sowing may be delayed till then. I have latterly always sown a few seeds of the Autumn Giant Cauliflower in autumn to plant out in April. I always find it so reliable in a hot dry summer. Autumn Cauliflower and Broccoli may stand a little nearer each other than would be desirable for those plants that are intended for supplying the spring demand, as in the latter case the hardness which a free circulation of air round and among the plants gives will enable them to pass without injury through a period of low temperature that would if thickly planted destroy their less firmly built-up tissues. But with the autumn and winter kinds, such as those I have mentioned, protection in some form should be given. And the best plan to adopt on the approach of a severe frost is to dig up all those plants that are forward, first tying the leaves over the hearts, and plant them thickly in a spare pit. The remainder may be laid down in some dry elevated spot, have some pea sticks or branches laid over them, and after the first night's frost be covered with dry litter to remain on as long as the frost continues and two or three days afterwards. It sometimes happens that these early Broccoli grow too large for table if planted far apart, especially if the summer and autumn be mild and moist; therefore it is always a good plan to have one bed at least planted close, or say 18 in. apart in the row with 2 ft. between the rows. This will give plenty of space for good medium sized heads, which when young are so much in demand. The land does not require any special preparation for Broccoli. I always plant after the early Potatoes, simply drawing deep drills with the hoe the right distances apart and planting firmly in the drills.

E. HOBDAV.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Wintering Potatoes.—The soft, moist character of the weather renders the sound keeping of all kinds of Potatoes more than usually difficult. Early kinds lifted in July and August and stored for seed are already pushing growth, and need plenty of air to prevent the shoots from becoming weak and blanched. If this early growth can be kept stout, short, and green, no harm will result, but to have it so the temperature must be as low as possible, and the position dry. To get a low temperature, however, is not easy during a mild winter; the best of temperatures in which to keep Potatoes well at rest is one just above the freezing point; below that there is danger, especially to tubers that have become active. All tubers intended for planting cannot be kept too thin in bulk, and frequent turning is very desirable. Where they lie in bulk the top of the heap will always indicate damp, whilst perhaps below the tubers are dry. Very soon, however, the greater warmth generated by the bulk will promote growth, and if not at once checked there will be waste. In such cases it is well to turn the heap often, and with care. In close, damp pits Potatoes can hardly be keeping well. Let them be ever so well ventilated, the heavy rains will promote damp and premature growth. Those, therefore, who have their stock stored in pits will do wisely to open and examine them as soon as possible. Probably the best of all places in which to store Potatoes is a large, dry, cool cellar. Here especially Potatoes for eating keep well, and, best of all, the temperature is regular and even, let it be what it may outside. Late sorts intended for seed, if spread out thinly, will not push growth too early, but the early Kidneys

may be best in a more airy place. It is of such importance that seed tubers should be planted in full possession of all natural vigour, that too much care cannot well be bestowed upon their proper storing.

—A. D.

Effect of Peat Charcoal on Potatoes.—As we are fast approaching the season for planting early Potatoes, allow me to give my experience of last season. Having heard and read a great deal of the value of peat charcoal, I thought I would give it a fair trial. I procured from a firm in the north a small portion of their prepared "Peat Charcoal Potato Manure;" also some of their ground peat charcoal, pure. I then got a bag of Dartmoor peat charcoal, made from the black peat. This was unground, and I had it pounded so that it would pass through a sieve $\frac{1}{2}$ -in. mesh. Having selected a piece of ground, I decided to plant none but Myatt's Kidney. I first put the prepared manure by itself, then mixed with a little stable manure, next the ground charcoal in the same two ways, and lastly the Dartmoor charcoal. The results were as follows: I had the worst crop and most disease where I used the prepared peat charcoal manure, and the best where I used the Dartmoor charcoal pure and simple. I noticed in digging that the Potatoes seemed best where the charcoal was coarsest. I purpose using this peat charcoal more extensively this year. I may observe that I use the coarse pieces of charcoal in potting for drainage, and I fancy the plants do much better with it than otherwise. My gardener believes there is some special value in this article which he cannot explain.

COUNTRYMAN.

Early Purple-top Munich Turnip.—As far as my experience is concerned in regard to this Turnip, I feel justified in recommending it. We have grown it besides other kinds, and have found it to surpass them all in point of earliness. It is also fully equal to them in flavour, and much smaller in the top; in short, I consider it all that can be desired in the way of a Turnip.—C. B.

THE GARDEN IN THE HOUSE.

PLANTS FOR TABLE DECORATION.

FINE-LEAVED plants for this purpose greatly assist in economising flowers in winter when the supply of the latter is limited, and throughout the summer months they impart a coolness and freshness to the table, both with and without flowers. Where a constant supply of plants has to be grown for this purpose it should be the aim of the cultivator to have them as varied as possible. It is also essential that they be well grown, as plants with sickly foliage, or otherwise disfigured, either by insect pests or overcrowding, will present but a poor appearance when placed on a table, where their general qualities can be seen at a glance. Therefore, whatever is grown for this purpose ought to be in the best of health. Six-inch pots should be the maximum in which plants for table are grown, and not many should be tolerated in this size. I much prefer $4\frac{1}{2}$ -in. pots for almost all kinds of plants, and some Palms can be grown and kept in good health in 3-in. pots, and of sufficient size and proportions to produce a good effect. These smaller-sized pots have a decided advantage in the case of some arrangements. I have at times used several plants for table work when only in very small pots. I have invariably noticed that the very common error made by cultivators for this purpose has been adhering far too much to the larger size of pot, which has frequently been out of all proportion to the size of the plant. Now I consider quite the opposite ought to be aimed at, i.e., to endeavour to secure a healthy plant in as small a pot as possible. Plants in such pots will require more attention in the way of watering, &c., than those in larger size, but they will not be so likely to lose their roots as when the larger size is used. When the plants become pot-bound and require extra nutrition to assist them, they should be treated to frequent waterings, either of liquid manure or some artificial fertiliser. I have found Standen's a very useful manure, for Palms especially. By thus treating the plants, and paying attention to the cleanliness of the foliage, they can be made to do service for a long time. They ought to be changed twice or three times every week, according to their hardness, and ought not at any time when in the house to be allowed to become dry at the root, for, being in a dry atmosphere, they suffer from drought the more readily.

Palms.—The impunity with which some kinds of Palms withstand ill-treatment is extraordinary, notably those which thrive in a temperate house. Some of the most graceful kinds require stove treatment; consequently they must be used more carefully. Foremost among these stands *Cocos Weddelliana*, which is one of the most elegant Palms when in a small state. It can be grown of sufficient size for table work in $4\frac{1}{2}$ -in. pots, and even in smaller pots it is very effective. *Geonoma gracilis* is also a most useful Palm in a

small state, and very graceful. It is, when healthy, of a deeper shade of green than the former. *Areca aurea* is one of the best of its class, being slender in growth and elegant in outline. *A. lutescens* is perhaps one of the most useful Palms we have. It can be had and grown well in small pots, and will withstand exposure to a dry atmosphere. *A. Verschaffeltii* is also a useful sort, partaking of the character of *A. aurea*, but rather more robust in growth. *A. rubra* is a useful and hardy kind, very handy in 3-in. pots; in larger pots it is inclined to grow too freely for table work. *A. sapida* is very pretty when in small pots before it partakes of its more robust habit, and can be grown in a warm greenhouse. *A. nobilis* (or *Oncosperma Van Houtteana*), distinguished by its spiny petioles, is very distinct, and in a small state most useful, but it requires a higher temperature than most kinds. *Calamus ciliaris*, when dwarf, is one of the most distinct of Palms grown as a plant for the table. Amongst *Chamædoreas*, *C. graminifolia* is one of the best. It can be used very effectively as a centre plant for the dinner table even when 3 ft. or 4 ft. high, being very light and graceful. *C. glaucifolia* is also a very serviceable plant, partaking as regards the formation of its leaves somewhat of the character of the genus *Cocos*. This Palm can be grown to form beautiful plants for the table in 3-in. pots. When in larger pots it is apt to increase in height rapidly, rendering it rather too tall for table decoration, but most serviceable as a general ornamental plant. *Dæmonorops fissus* and other kinds closely resembling it, such as *D. melanochætes* and *palmbanicus*, can be retained in a healthy state for a length of time in small pots, in which they are very useful and effective. *Euterpe edulis*, I think, is one of the prettiest Palms grown as a table plant in 4½-in. and 3-in. pots; its slender stem and the arching character of its fronds render it a most distinct and graceful Palm. And *Geonoma pumila* is also a good Palm for the table when in small pots; it is quite distinct from *G. Schottiana*, which is another good plant for this purpose. *Kentia australis*, *Belmoreana*, and *Forsteriana* are amongst the hardiest and most useful Palms which we possess, invariably retaining their healthy deep green colour for a length of time. One or other of these kinds should be grown in the most select collection. As small plants they are especially useful for the table; when larger they are invaluable as general decorative plants. They can be grown to a large size in a comparatively small pot with the aid of occasional doses of Standen's manure. *Phoenix rupicola* is one of the best of its class, and not so scarce as it has been. *Scaforthia elegans* is a useful table plant in the smaller sizes of pots before it puts on its robust habit. Among the Fan Palms, plants of the *Thrinax* are the most light and elegant for table, and of these *T. elegans* is one of the best of its class, and quite distinct from any other Palm I have named previously.

Culture.—It will be generally found in growing Palms for table decoration that when they become pot-bound they will be liable to the attacks of red spider, and mostly those kinds grown in a stove temperature. In order to remedy this as much as possible in the general routine of work, they ought to be well syringed overhead at least twice daily; but if the spider becomes very troublesome, it is better to resort to sponging the leaves, or to dipping the plants in a solution made from any of the many insecticides now so easily to be procured. Experience as to the different strengths of various kinds will be found to be highly essential to the cultivator, in order that he may know to what strength he may use any given sort without injury to the plants. J. H., in *Field*.

GEORGE ELIOT'S FUNERAL.

It was with feelings of deep sorrow that England received the sad intelligence of George Eliot's death. Though every year necessarily adds to the number of the illustrious departed, still

It is not a common chance
That takes away a noble mind.

Thoughts like these were uppermost as I mingled with the throng which, amid fast falling rain, pressed into the Highgate Cemetery on Wednesday, the 29th ult., to see the last honours paid to one of the greatest writers that England has ever produced. That throng was composed of numbers to whom she was personally unknown, but whose acquaintance with her works (if one might judge by their words) was of the most intimate description. In this way an author has one advantage (among many others) over ordinary mortals; these may be dearly loved and cherished by those about them, while those have a far wider range—"One touch of Nature makes the whole world akin." Leaving out the relatives and friends who occupied the mourning coaches, among whom were many who fill high places in the great republic of letters, the sad procession from the cemetery chapel to the open grave was followed by a crowd of men and women who must have felt that something had passed away from their lives. That hereafter in the long years to

come they would never again look forward to the advent of a new book from the pen of her who created "Dinah Morris" and "Silas Marner," and to whom the life of Mediæval Florence seemed as familiar as that of modern London, while of her it might be said—

A life that all the Muses deck'd
With gifts of grace, that might express
All comprehensive tenderness,
All subliming intellect.

On the religious part of the funeral this is not the place to dwell; rather would I note the demeanor of the multitude after this was over, and the manner in which their respect and sorrow were shown. As the coffin was lifted from the hearse it appeared covered with masses of flowers, for the most part white, though here and there faint patches of colour mingled with the snowy blossoms of the *Eucharis*, *Azalea*, *Camellia*, and *Lily of the Valley*. There were also large bouquets of *Violets* tied up with their own leaves, but this was not all. The crowds which lined the pathway which was cleared for the coffin and the train of mourners kept pressing forward to touch the narrow house which contained all that was mortal of George Eliot. Many of the ladies and some men bore wreaths and nosegays which they laid tenderly by the side of the other floral tributes. The coffin was lowered and the bearers paused to receive these. In this way when the procession was over and the honoured dust had been placed in the vault, the grave presented the appearance of a pyramid of flowers. So was Fidele's sad grave to be "sweetened." Thus would the poet "deck the laureate hearse of Lycidas." The Romans in classic times scattered fragrant Rose-leaves over the tombs of those they loved. The custom will never "wax old and vanish away." So do English men and women mourn those who, amid the prayers and tears of kindred and friends, and the regrets of an admiring world, pass over to the majority. N.

CARNATION SEED.

"P. G." INQUIRES whether in advertised packets of *Carnation* seed description and produce may be expected to correspond. Certainly not; for no one who knows the *Carnation* would undertake to warrant so exactly what seedlings shall be in form and colour. From the best and worst parentage they will differ considerably, but there will probably be the least variation where the seed is saved from the commonest kinds, such as rough crimson scarlet and rose-coloured self. "P. G." may, however, so far put his trust in prophetic announcements that in an advertised collection of say twelve varieties he may be quite sure of getting that number and as many more as there are seeds that grow. But it is too much to expect the young plants to bind themselves by printed assurances on their flowery little packets.

I do not here speak of such seed as the best florist flowers would give by careful crossing. That is much too scant and precious to the raiser to be likely to find its way into public seed lists; while no true florist would commit himself to such an act of ignorance as predicting what unown seed would bring forth. All he would answer for would be that thoroughbred seed from thoroughbred flowers would give, amidst diverse failures, some correct and some superior flowers in the different classes.

Exact Reproduction from Seed is the very thing we do not aim at or expect. To the florist the use of seed is progress, not propagation. In the *Carnation* an identical variety is perpetuated by propagation from layers or pipings. Its seed is sown in the hope of carrying improvement a stage further, and all the interest of a batch of seedlings rests upon the fact that they will not be the same either as their parents or each other. A pod from the highest type of the *Carnation*, the scarlet bizarre, which is a flower striped with scarlet and maroon on a clear white ground, may give a seedling in its own class and another in the crimson bizarre, or even pink and purple. Other of the seedlings, omitting the maroon, will be white ground, flowers with stripes in scarlet, pink, or the more remote purple, and be scarlet, rose, or purple "flakes" accordingly. Some again will leave out the essential white from their two-coloured stripes and be nondescript or "run" flowers, and some will be simply selfs of different colours. Some will fail in fulness, and be but half double enough or lean-podded singles of five petals. So also with that lovely sister-flower the *Picotée*, in which the petals are edged, very strictly so, with one colour instead of striped with two or one. A pod from say a "rose-edged" *Picotée* will give seedlings in its own class and in reds and purples light and heavy.

Result of Sowing Collections.—Mr. Barlow, of Stakehill, did once amuse his fellow-florists with growing the whole collection of such *Carnation* seeds as "P. G." refers to. We all knew how it would end, but our florist brother was willing to give the pains and ground required for the floral frolic; and, moreover, he much wished to study the effect upon a very severe old Lancashire florist at the

sight of something calculated to horrify and haunt him. The seed packets promised divers combinations of colours, and one description, more daring than the rest, foretold Carnations "yellow-blue-and-black," which was three times more than enough to startle a Carnation grower. The result was a long bed of unutterable mixtures. There were white, sulphur, rose, red and crimson selfs, and many dingy buff and red ground flowers, most with rough-edged petals, blotched and barred with random markings. Nothing that I remember came nearer our favourite packet of the "yellow-blue-and-black" Carnation than a yellowish flower with slate-coloured stripes. The amount of grass and bloom was great, but most of the flowers were single; and all that old David, the scandalised, could say as he caught sight of them once and again was: "What, then, Barlow; they're not shoosed unner (dug in) yet!"

Kirkby Malzeard, Ripon.

FRANCIS D. HORNER.

Carnations from Seed.—"B. G." (p. 11) has at last made public a complaint which many purchasers of Carnation and Picotee seed make among themselves. I think, however, that these people expect too much; the seed in question, as a rule, comes from the south of France, and is almost invariably self-fertilised. Carefully hybridised seed is, I suppose, a thing hardly to be obtained for money by anyone. It is too valuable; and a florist who has carefully crossed parent with parent, selecting with as much care as a breeder of racehorses, would, I am sure, never dream of parting with his treasure to any one whom he did not think would do his work ample justice. You buy perhaps 100 seeds for 5s. or 6s.; well, if ten or fifteen plants come double and fairly characteristic, if five will be good enough for border plants, and one is of sufficient quality to be worth a name and a place on an exhibition stand, not only is one's luck wonderful, but the plants are got wonderfully cheap, and, in my opinion, there need be no cause to complain. Carnation seed is always worth growing, for no one can possibly tell what is coming; from a single hybridisation of the most careful description may come flakes, bizzarras, selfs, and fancies. The best florists think themselves lucky if from 100 carefully crossed seeds there come five or six good enough for the exhibition stand. My advice, therefore, is, always save your own seed.—GROFFLE.

—My experience of Carnation seed as advertised in seed catalogues has been pretty much the same as "B. G.'s" (p. 11), seeing that I have never yet got a plant that could be shown at an exhibition of this flower from such seed. If "B. G." wishes to raise plants from seed that will give satisfaction, he should buy a few named plants from some amateur who he knows has exhibited and taken prizes, and then save seed from such plants.—K. K.

LATE NOTES AND QUESTIONS.

French Pæonies.—Seeing that the last GARDEN contains a good article and figure of the French Pæonies allow me to say that I have grown them now four years from a collection of twenty-four sorts, sent by the Dean of Hereford to his brother the Earl of Powis, and I find them a well worth cultivation. There was a lady here last season who wished to know where they were to be got, as she should so much like to grow them. I could only refer her to the Continent. Now, perhaps, you can say where in England they can be had? In my collection there are some with highly marked centres, and for cutting for vases they are very useful.—G. BOND, *Walcot*. [There is a good collection of Pæonies in Mr. Parker's Nursery, at Tooting, and also in some of our other hardy plant nurseries.]

Gardens near Grecian or Classic Houses.—*Mrs. L.*—Our series will comprise some such gardens, and some have been published in back volumes of THE GARDEN. At present the style of gardening is, unfortunately, seldom considerably adapted to this or any other "style." A simple, natural one with smooth lawn coming near the house and, for the most part, permanent beds would suit such houses as well as any others.

Weeds on Walks.—Will anyone tell me what is the best preparation to kill weeds on walks with Box edges at this time of year?—B. B. C.

Names of Plants.—*B. G.*—It is a Perpetual-flowering Carnation of the Sir Garnet Wolsley type, but the flower sent is not sufficient to determine its merits; it is not open enough.—*D. B. C.*—*Euphorbia Lathyrus* (Common Caper Spurge).—*G. A. R.*—1, *Selaginella Mertensii*; 2, *Pteris longifolia*; 3, *Adiantum hispidulum*; 4, *Tradescantia* species (send in flower).—*E. Peters.*—*Helichrysum vestitum*.

Melons at Christmas.—For the last month we have had Melons, and there are still a few left. Is not this unusual for January? The Melon is Dell's Hybrid, and the flavour and texture are excellent.—W. W. KETTLEWELL, *Hartree Court, near Bristol*.

WE are informed that the annual dinner of the Horticultural Club will take place at the club house on Tuesday next, the 11th inst., Mr. John Lee in the chair, and are pleased to hear that the club is prospering, many new members having joined during the past year.

MR. L. POINTON has left Biddulph Grange and is going into partnership with Mr. J. Sherratt, nurseryman &c., Knypersley, Biddulph, near Congleton.

PROPAGATING.



Aphelexis macrantha purpurea.—All the varieties of Aphelexis are increased by means of cuttings prepared as shown in the annexed illustration. Take clean 6-in. pots, fill them quarter full of crocks, and on these place some of the siftings out of the soil, which should consist of two-thirds peat and the other yellow loam, made very sandy. Fill up with this, and press down firmly to $\frac{1}{4}$ in. below the rim, which space should be filled with silver sand that has previously been washed. Press down again, and sprinkle with water. Mark the sand with a bell-glass, and then insert the cuttings with a small dibber, fastening them well in. Give a good watering to settle them well in, leaving the glasses off for an hour or two to dry up the leaves. The pots must then be plunged half way up in a tan bed. The glasses should be wiped dry every other morning. The cuttings are generally between two and three months in rooting. The best month for striking them in is March. When they begin to grow, which will be about the second month, tilt up the glasses with a small piece of crock or wood, gradually increasing the opening till they may be removed altogether. They may then be put in a cool, shady pit, ready for potting off in July.—H.

Botanic Gardens, Georgetown, Demerara.—The report on this garden for the half-year ending June 30 last has just been received. Its matter is mostly of local interest. We note, however, that Mr. Jenman, the superintendent, refers in one part of the report to the rapid growth of some introduced plants. "This," he says, "is more particularly shown by the Roses obtained from England. The Hybrid Perpetuals from average-sized nursery plants have in the three months which have elapsed since they were put out grown into bushes from 6 ft. to 7 ft. high, and the other hard-wooded things have hardly done less well; while herbaceous plants, such as *Coleus*, *Alternanthera*, *Iresine*, *Amarantus*, &c., appear to rush up to maturity in two or three weeks. Much of this luxuriance is due, however, to the very moist season experienced, as vegetation soon suffers and becomes stagnant with even a short period of drought in the stiff, tenacious soil of the coast land of the colony."—*Nature*.

Cleansing Hothouses.—In every department of the garden cleanliness is one of the principal items of success, and particularly so in forcing houses, where, owing to the use of so much fire-heat, insects are apt to establish themselves, and prevention is always better than cure. For this purpose we find nothing to answer better for cleaning out the holes and corners where young broods may be deposited than half a pint of petroleum oil put in two gallons of water, and damping every nook and corner with the syringe. In applying it, first draw the syringe full, and discharge it back into the bucket, making the two ingredients boil up together, and while in that state draw the syringe full and apply it where wanted, and continue the work till the can is empty, or otherwise the petroleum will all float on the surface. This liberates the dirt and routes out every living insect with which it comes in contact; follow up with the scrubbing-brush, and finish off with the syringe and plenty of clean water.—JAMES SMITH, *Waterdale*.

Arbroath Horticultural and Natural History Association.—In an opening lecture in connection with this newly-formed association, the lecturer, Mr. Hugh Fraser, Edinburgh, after describing the working of the Scottish Horticultural Association, said it would be wrong for any man to neglect his business in order to study natural science, but no working man could better employ his leisure hours than in the contemplation of flowers or plants or any other branch of natural history. He hoped the Arbroath Society would have a long and successful career before it, and that from its ranks men would be turned out who would make some mark in the scientific world.

The Garden Annual.—All readers of this will greatly oblige the editor by informing him of any omissions, changes, or errors. We do not desire large places only, but any where gardening is regularly carried on. Correspondents writing from places on the borders of counties will oblige by including those in the adjacent counties. The addresses should be written very clearly in the following order; *Name of Place, County, Railway Station, Gardener's Name, Owner, Post Town*.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ANNUAL REPRODUCTION OF BULBS.

Two or three years ago when "Dunedin" was constantly writing in *THE GARDEN* about what he thought was a new discovery, that the bulbs of Lilies perish and are renewed every year, I pointed out that all the common garden bulbs which I knew have this habit; and I am glad to find that Mr. Miles has come to the same conclusion. All who have studied vegetable physiology must know it, and I really cannot understand how any practical gardener who digs and plants and transplants at all times of the year, and makes use of his eyes and brains as well as his hands, can fail to have observed it. I will not venture to say that what is true of most bulbs must be true of all; but without doubt the Crocus, the Snowdrop, the Daffodil, the Tulip, the Dog's-tooth Violet, the terrestrial Orchis, the Gladiolus, and others annually form one or more new bulbs; whilst the bulb of the preceding year either totally disappears or invariably dies. I will give my reasons presently for believing that Lilies form no exception to this rule, but I will first ask those who are either sceptical or curious about the matter to observe for themselves. Most gardens can afford for the *corpus vile* of the experiment a bunch of yellow Crocus, of Daffodils, and of common Tulips, and in most neighbourhoods the early purple Orchis or the Spotted Orchis are common enough to afford similar opportunities for observation. All these kinds should be observed, as the manner of reproduction varies in each of them, and the Orchis is the most interesting of all, the old tuber remaining apparently sound sometimes for a year after it has entirely ceased to live. One bulb of each of the above-named kinds should be dug up weekly and carefully examined and dissected from the time that the stems first appear above ground to the time that they wither. It will be found in the case of the Crocus that an entirely new bulb is being formed in concentric layers on the upper surface of the old bulb, round the base of each stem. Sometimes a large Dutch root of yellow Crocus will produce as many as seven or eight stems; each of these forms its own new bulb, and as these new bulbs increase the old bulb gradually decays and disappears. Much the same takes place with the Daffodil, but the new bulbs are formed inside or at the side of the old bulb, not above it; and in the case both of the Crocus and the Daffodil every stem, whether flower-bearing or barren, is sure to form its own independent bulb, so that we know for certain, before digging them up, how many bulbs we shall find.

The Gladiolus has nearly the same habit of reproduction as the Crocus, except that the old bulb is not absorbed, and does not decay in the process, but, having once produced shoots, it never retains any power of producing more. In the class to which the Tulip belongs the manner of renewal is quite different. The living stem in their case does not become the axis of a new concentric formation, but new bulbs are formed laterally at the lower end of the stem underground, the new bulbs being in concentric layers round the germ of next year's stem growth, the line of which forms their axis; by the time the new bulbs are formed the old bulb has entirely disappeared. I feel little doubt that the habit of Lilies is nearly the same as that of Tulips with regard to the annual renewal of their bulbs. Most of them are too precious for these experi-

ments, but we had better select common and vigorous and fast-increasing kinds, such as the Orange Lily and the Yellow Turk's Cap. We shall find that their stem in spring rises from the line of the axis, round which the scales are arranged in concentric layers; but if we dig up the root in autumn when the stem is dying, we shall find no scales remaining in the former arrangement, but one, two, three, or more bulbs round the base of the stem, each having a distinct axis in the line of the next year's stem. I own that I have often dug up what has been when planted a large bulb of *L. auratum*, and has flowered well, and on removing the dead stem with its large wig of roots, I have found a much diminished bulb occupying part of the space before held by the large bulb. In other cases there remain what seem certainly to be old scales, but in these instances I believe the growth to have been imperfect and unhealthy. I have sometimes seen also in the Gladiolus stems with hardly a trace of new bulb at their base, the old bulb looking fresh and sound, but in these cases there is no increase, and little or no healthy growth the following year, and the theory seems to hold good that for the underground increase of Lilies and other bulbs the death of the old bulb is a necessary condition. We may infer that in the stoloniferous Lilies the old bulb dies, because such Lilies as *L. superbum* never come up exactly in the same spot the second year; but the stoloniferous habit which we see in some Lilies, as well as in some Tulips (*T. sylvestris*), differs only in degree from the ordinary habit of these bulbs, which are generally reproduced at the sides of the root-stock.

Transplanting.—But I must cut this short, and will ask, in conclusion, What are the practical lessons to be learnt by gardeners from these observations? It might be thought that one lesson would be not to transplant until the reproduction is complete and the new bulb at rest, but in practice we find that bulbs succeed better if transplanted just before the stem begins to wither. Most of our common bulbs are so hardy, that it matters little when we move them; but for Lilies and the choicer Narcissi and terrestrial Orchises, I always prefer to transplant before the dormant period begins rather than whilst they are dormant. By this plan the bulbs seem to be able to make for themselves a comfortable bed before they go to sleep, and to be more vigorous when they start again. We find something analogous to this amongst insects. Caterpillars which transform under ground work for themselves, before finally casting their skins, a cavity, so as to prevent the soil from pressing upon them, and if a chrysalis is dug up and buried again in the soil, I have observed that it generally resents the disturbance either by dying or by producing a deformed moth. No doubt if bulbs are to remain long out of the ground or to travel far, it is better to wait until they are quite at rest before digging them up, and I feel sure Mr. Elwes is right when he tells us, in the introduction to his "Monograph of Lilies" that one chief reason why so many imported *L. auratum* fail is that they are dug up before their growth is completed, and that for this cause the bulbs of this Lily imported in September and October are less likely to succeed than those which arrive after Christmas.

Edge Hall, Malpas.

C. WOLLEY DOD.

—May I say a few words in support of Mr. Miles's remarks in *THE GARDEN* of the 8th inst.? I read all "Dunedin's" papers in Vol. XIV. and the criticisms thereon, and I made a few contributions on the subject, one of which "Dunedin" accepted (see p. 262) as pointing to a solution of the question as to how the Lily grows and lives from year to year. I, like Mr. Miles, have found my opinion strengthened by longer experience, and I think I can furnish a fresh argument in favour of "Dunedin's" view. In the culture of Lilies (in pots especially) it is common to find that after blooming once or twice, a Lily throws up more stems than one, and in repotting it will be seen that each such stem

risers from a distinct and separate bulb. From whence, then, come these separate bulbs? They are not offsets in the ordinary sense of the term, for offsets are formed on the exterior of the old bulb, as in the case of *Hyacinths*, while in this case not a vestige of the old bulb remains. The clear explanation seems to be that these separate bulbs are the successional ones formed in the manner maintained by "Dunedin," sometimes only singly, but at other times in threes or even fours.—W. J. T., *Brixton*.

ANNUAL GROWTH OF LILIES.

MR. MILES has re-opened this question, which he truly says was "threshed out" when last discussed in *THE GARDEN*. I can assure Mr. Miles that no one is more open to conviction than I am, or less disposed to cling to accepted conclusions when reasonable proof is forthcoming of their fallacy; yet whoever informed him that I had come to think Lily bulbs are of annual growth was very much mistaken. In place of this, since the subject was first opened I have seen enough to confirm the opinion I from the first expressed, which is that Lilies, with the exception of one or two kinds, like other bulbs composed of scales or layers, although continuous in their increase from within by the formation of new scales, and as continuous in their throwing off the old external ones, do not completely renew themselves nearly so quickly as those who entertain the annual or biennial view suppose. I may here remark that so far as I have been able to understand, the difference of opinion entertained by those who have spoken on the subject is simply in the time that it takes from the formation of the scales to their decay. No one supposes that they exist for an indefinite time; on the other hand, I have never seen the slightest reason for supposing that Lily bulbs are of annual formation, like the corm or solid bulbous plants, such as the *Gladioli* and *Croci*.

To test the truth of this annual or biennial decay of the scales, two years ago the past autumn I took a bulb each of several kinds of Lilies—*speciosum*, *Krameri*, and *auratum*—and treated them as follows: At the time of potting, soon after the tops had died down, I got some of the thinnest soft metallic wire, which is almost as pliable as a bit of ordinary thread; this I worked carefully in between the upper part of the scales in the form of a ring, enclosing within the circle more than half the scales which composed the central portion of the bulbs, leaving from fourteen to sixteen of the outer scales outside the ring of wire. I left the ends of the wire loose and long enough to permit of the enclosed portion of the bulbs growing. I then placed the bulbs in the pots, and covered them with soil in the usual way. They grew and flowered the following summer in no way different from others not wired. When potted again twelve months afterwards the bulbs had grown considerably, the scales enclosed within the ring of wire having expanded a good deal. Of the outer scales that I had left not enclosed within the wire there were in no case more than six or seven decayed, the others remaining, as usually seen, browner than the younger or central portion, but quite alive. I potted them again with the wire untouched last autumn; at the end of the second year all the scales outside the rings were gone except from one to four on each bulb; yet there was not a single bulb but had at least one of the old scales outside the ring left alive, and there was no trace of any inside the rings having gone. Now, according to the annual or biennial theory, not a vestige of living portion should have been found outside the rings.

This experiment, simple though it was, still more convinced me of the mistake made by those who believe in the rapid formation and decay of Lily scales. I did not attempt to carry it further, although I should not expect to find the annual decay even of the scales of the same bulbs always the same, nor the formation of new ones always alike either. A good deal will doubtless depend on the many influences for and against the well-being of the bulbs, but nothing can be further from the truth than the supposition that each bulb is entirely an annual production, like that of the corm in true bulbous plants. If I were to hazard an opinion, I should say that a healthy strong bulb of the kinds of Lily that possess this form of root would take not less than four years for all the scales in existence at a given time to have passed away and their places been taken by a new formation—in other words by an entirely new plant.

T. BAINES.

—I am glad that the Lily ball keeps rolling; sorry that I for one cannot respond to Mr. Miles' appeal (p. 29) for an opinion. I am busy; even some of our Lilies are not yet potted. I would, however, suggest careful notice of *L. tenuifolium*, the Lily having

the bulb showing least tendency to break up, while *L. giganteum* shows the most. I think it would be possible to grow some Lilies in water, so that the bulb might be constantly under observation, say, for instance, *L. superbum* (the Swamp Lily); this should grow in one of Powell's tall table glasses, with a nest of Moss or of some fibre at the top. Such a glass would not be much liable to topple over, and a weighted stick might support the stem; this experiment might be worth trying. I am a great believer in Mr. Max Leichtlin, and so far would back his opinion.

Heatherbank, Weybridge Heath.

GEORGE F. WILSON.

—Mr. Miles asks for my experience as to the decay of bulbs after flowering. It is no new theory, but a well-known fact, that a great many bulbs (perhaps the greater number) and many herbaceous plants as well decay after flowering. A familiar instance is the decay of nearly all the tuberous-rooted British Orchids. There is a practical application of the fact with which I have often comforted despairing friends when they have lost (or think they have lost) their plants after a good show of flowers. The fact is that in many cases the new roots do not flower at once, and sometimes make no show above ground till they are old enough to flower. When there is a good clump there will always be a sufficient number to make a succession; but where the clump is small there may be an apparent loss of the whole. I have known *Triteleia uniflora* not to put in an appearance one year, and yet be very good the year before and the year after, and I have known *Arum crinitum* disappear for two years and then come up as strong as ever.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

NOTES OF THE WEEK.

Christmas Roses in Devonshire.—I have a good many *Hellebores* at present in bloom out-of-doors, and as there is so much discussion about them just now, I have sent you specimens of them. They are, I believe, all natural species (except one variety of *atro-rubens*). In one or two instances the names are without authority, and in others I purposely appropriate them not in accordance with some arrangements recently propounded. I have also recently flowered a fac-simile of the *Hellebore* sent over by Mr. Sandison, and figured in 1842 in the "Botanical Register." It is essentially different from *antiquorum*, which is now so called. In the "Register" it is named *orientalis*, but Mr. Baker calls it *antiquorum*. The following is a list of the flowers which I send: *abchasicus*, *olympicus* major, *lividescens*, *atro-rubens*, and *atro-rubens* var., persistent foliage; odor (sweet-scented), semi-persistent; pedatus, cupreus, torquatus, intermedius, green sweet-smelling, and purpurascens, deciduous. I have, perhaps, as many more species coming forward. I send also *H. niger*, *H. niger maximus*, and an unnamed sort which appears to have been a cross between *colchicus* and *atro-rubens*. Most of these are earlier than usual this season; but, in fact, our gardens have been full of colour which does not ordinarily appear at Christmas.—T. H. ARCHER-HIND, *Coombefishacre House, Newton Abbott*. [The specimens sent by our correspondent certainly represent a very fine collection, and the colours of many of them are remarkably clear, particularly *H. atro-rubens* and its varieties. There are pure white flowered kinds, and the beautiful large blush form of *H. niger* named *maximus*. Accompanying the *Hellebores* are flowers of *Crocus Imperati*, one of the most beautiful of all *Croci*, and blooms of *Triteleia* (*Milla*) *uniflora*, all of which indicate the mildness of the climate of Devonshire.]

Billbergias at Kew.—In the large collection of Bromeliaceae plants in the Palm house at Kew there are always a few in flower. Just now the beautiful *B. vittata macrantha* is gay with its long, gracefully drooping spikes of blossoms, which possess a combination of colours, but chiefly of rich carmine, reddish purple, and deep purple, all blended in the most charming manner, and the large rosy-pink bracts that subtend the flowers considerably enhance their beauty. The foliage, too, of this species is handsome, as it consists of broad leaves from 1 ft. to 2 ft. long, with marginal rows of black spines and broad transverse bands of a silvery lustre on a metallic green ground. It is to be regretted that this beautiful Bromeliad is as yet so scarce, for we seldom meet with it, and the only place in which we had hitherto seen it grown in quantity was in the famous but now unhappily dispersed collection at Dangstein, where Mr. Vair used to grow it remarkably fine, and from this source we believe the Kew plants were derived. Among other Bromeliads worthy of note in flower at Kew are *B. pallescens*, which has rather pale green flowers and pink bracts, a contrast which renders it remarkable, and *Echmea fasciata*, which bears a congested cluster of rosy-pink bracts and blossoms of a similar hue, which last a long time in perfection.

Rubus rosæflorus in Flower in Winter.—I send a flower of this from the greenhouse borne on a plant potted the begin-

ning of October. I have tried now five or six years, but cannot flower it out-of-doors. It grows strongly, but does not get mature enough before it is cut down by frost. It appears to flower in single blooms at the points of the shoots, and their size surprises one compared with the smallness of the bud. I should like to see the single variety which I suppose exists. I find it a good plan to keep a good clump out-of-doors in a warm corner, where, when well established, it runs like Nettles, so that every season there is a good supply to give away. The pure cold whiteness and semi-transparency of the petals always strike me as unlike the colour and texture of any other flower that I know. I came upon it some years ago at a little nursery at Vevey, on the Lake of Geneva. They could give me no name for it but double Bramble (*Ronce à fleur double*), and I only knew the proper name when it was described a year or two ago in THE GARDEN.—F. J.

The Bulbous Iris (*Xiphion planifolium*).—This, one of the showiest harbingers of spring among hardy flowers, is, we hear, beautifully in flower in Mr. Ware's nursery, Tottenham. It is a plant which does not appear to be much known, or if known, not much grown, though it is an ancient denizen of our garden; even in old Gerard's time it was a great favourite, and he says of it: "It is dasht over, instead of the blew or watchet colour, with a most pleasant gold-yellow colour, and hath a smell exceeding sweet." Since Gerard's time it has received no fewer than thirteen names, but Miller's name, *X. planifolium*, is generally considered the most correct, on account of priority of date. Mr. Ware grows it as *Iris scorpioides*; in other nurseries it may be found under the names of *X. alatum*, *I. triatala*, *I. transtagana*, *I. microptera*, &c. It is certainly a pretty plant, and all who would like to see it on their open borders on some of these dreary mornings, a singularly shaped flower of a purple and gold colour peeping a few inches above the soil and surrounded with broad foliage, should procure and plant a few bulbs of this pretty South European plant.

Calceolaria hybrida Burbidgei.—This new and charming plant is now and has been for more than a fortnight in flower in my greenhouse, and is, I think, likely to prove quite an acquisition. The plant in question was kindly sent me during last autumn by its raiser, the present curator of the Trinity College Botanic Gardens, whose name it bears, a name well and honourably known to readers of THE GARDEN, and also as that of the author of the charming account of botanical travels in Borneo, recently reviewed in its columns. Mr. Burbidge informs me that he obtained this hybrid by fertilising the bloom of *C. Fuchsifolia* (figured on plate 173 of the fifteenth volume of THE GARDEN, and synonymous with the plant figured under the name of *C. deflexa* on plate 6431 of the 105th volume of the "Botanical Magazine") with the pollen of *C. Pavoni*, a coarse-growing and not very ornamental species, figured in the seventy-fifth volume of "Botanical Magazine," plate 4525. The hybrid shows the foliage of the pollen parent, but in bloom is a decided improvement, both in size of pip and depth of shade of yellow on that of *C. Fuchsifolia*. It is apparently easy of cultivation, compact in habit of growth, and roots freely from cuttings.—W. E. G.

Notes on Hardy Flowers from Bickley.—There is here Backhouse's major form of *Saxifraga Burseriana*, flowering as well now as one would expect it had the season been farther advanced, and it most decidedly answers to its name. During the coming season there will be a rich variety of rare favourite Alpine plants, and to give a few examples of the way in which several genera have been worked up, I will make reference to the Gentians, Fritillaries, and Heronsbills as follows:—

<i>Gentiana acaulis</i> v. <i>coelestis</i>	<i>Gentiana verna</i>	<i>Fritillaria parviflora</i>
tina	Froelichi	Karelini
var. alba	pannonica	atropurpurea
asclepiadea	phlogifolia	Thunbergi
var. alba	umbellata	recurva
Andrewsi (Saponaria)	Kurroo	imperialis vars.
angustifolia	brachyphylla	Melegris vars.
æstiva	algida	<i>Erodium chrysanthum</i>
excisa	Walleneuvi	curvifolium
bavarica	lutea	romantum
imbricata	<i>Fritillaria pyrenaica</i>	macradenum
Burseri	Moggridgei	hymenodes
punctata	Burnati	petraeum
cruciata	kamtschatensis	mauritanicum
affinis	lanceolata	Manescavi
gellida	angustifolia	Rei-hardi
septemfida	pudica	cheilanthifolium

Shortly there will be a very fine cushion of *Saxifraga sancta* from Mount Athos in flower. Mr. R. Potter, of the York Nurseries, told me it was extremely rare. It approaches nearer to *S. juniperifolia* than any I know, but yet distinct.—T. D. HATFIELD.

Drooping-flowered Billbergia.—This graceful-habited and beautiful Bromeliad is now finely in flower in Messrs. Veitch & Sons' nursery at Chelsea, and will probably remain in beauty for some time. The leaves are arranged in a pitcher or vase-like form,

and are slender and gracefully arching. The flower-spikes spring from the centre of the tufts of foliage; they are from 6 in. to 9 in. in length, and, being slender, droop in an elegant manner. The blossoms have the outer petals rose-coloured, with greenish-blue margins, and the inner or recurved petals are a pea-green, margined with deep blue. It flourishes in warm greenhouses, and continues to flower for a long time in succession.

Bouquet Water Brooch.—A new invention in this way has lately been brought under our notice. It consists of a brooch designed by our correspondent "Brockhurst," and manufactured by Arnold & Lewis, of St. Ann's Square, Manchester, and is intended to be worn with flowers placed in a small vessel of water, which is constructed on the same principle as an exciseman's ink bottle, so that the water cannot be spilled. Delicate flowers will keep quite freshly in it for two or three days, and the brooch can be worn in caps or bonnets as well as in the ordinary manner.

Winter-flowering Cacti.—I wonder if it is a common thing for Epiphyllums to bloom twice in such a short time as they are doing with us. They were in full bloom in October, not a leaf without a flower, and now they are set with bloom-buds again. I know it is no uncommon thing for them to be in bloom at this time of the year, but I never knew them to flower twice in so short a time as that just stated. We have them grafted on the *Pereskia* stock, and, of course, the *Pereskia* is essentially a stove plant, far more tender than the Epiphyllum; consequently they are treated as stove plants. Epiphyllums on their own roots never show signs of suffering from cold so long as the temperature does not fall below 45°; in fact, from 45° to 50° is the most favourable temperature in which to flower these beautiful plants. While in growth they will bear any temperature without injury up to 65° or 70°. They may be kept in good health in a conservatory or greenhouse all the year round. Wherever placed to make growth, care should be taken to ripen it thoroughly. This is generally done by placing the plants full in the sun, and giving them but little water after their growth has been made.—J. GRAHAM, *Croston Hall, Lancashire*.

Imported Mistletoe.—Between the 1st and the 22nd of December last there arrived in London, from France, over 1750 crates, each containing on an average 1 cwt. of Mistletoe. We also sent direct from France 160 crates of Mistletoe to Liverpool, 100 to Manchester, 40 to Glasgow, and 20 to Plymouth; about from 200 to 300 crates were also distributed amongst these places from other quarters, making the total quantity sent from France over 2300 crates. From December 1st to the 10th Mistletoe was sold at from 4s. 6d. to 5s. per crate; from the 13th to the 18th, 8s.; on the 20th, 12s.; and on the 22nd as much as 20s. per crate was realised. This was doubtless caused by the scarcity in London, in consequence of large quantities being bought at the cheap prices, and sent into the provinces. English Mistletoe being scarce this season was the cause of the great demand upon the French, as in former years, when the English has been plentiful, the market has been glutted, and large quantities thrown away.—C. A. JACOBS & Co., *Russell Street, Covent Garden*.

Primulas and Cyclamens at Reading.—The Messrs. Sutton have for some years been noted for their strains of these, but never in any previous year have they been so fine as now. They are at present in perfection; no other word could describe their excellence, both as to high quality of flower and culture. Several houses are devoted to their culture.—W. H.

Epping Forest.—At a meeting on Saturday last of the council of "The Epping Forest and County of Essex Naturalists' Field Club," the following resolution was passed on the motion of Mr. Francis George Heath:—"That the Council of this Society, on behalf of the large section of the population of London interested in the pursuit of natural history, desires to record an emphatic protest against the proposal of the Great Eastern Railway Company to carry a line across Epping Forest, believing that it is wholly unnecessary for the railway to take the route projected, and that it would not fail to prejudicially affect the advantages secured by the Epping Forest Act, which directs that the Forest is to be preserved as far as possible in its natural aspect."

Narcissi.—What Mr. Burbidge informs me is *Narcissus Tazetta* var. *floribundus* is now in bloom out of doors at St. Michael's Mount. We have several other sorts of Narcissi naturalised in various parts of Cornwall which I hope to hunt up this spring.—W. ROBERTS, *Penzance*.

Michaelmas Daisies.—In our remarks (p. 38) with regard to the best of these it was inadvertently stated that the flowers of *Aster bessarabicus* were white; such, however, is not the case; they are similar in colour to those of *A. Amellus*, of which it is a variety. We need scarcely add that an *Aster* with white flowers, and combining such good qualities as *A. bessarabicus*, would be considered a valuable acquisition by all lovers of hardy plants.

GARDEN THOUGHTS.

The first publication of my "Garden Thoughts" has already brought me many pleasant and interesting communications, which encourage me to hope that, by educing experiences and hints from others, I may be of use to the brotherhood and sisterhood of gardeners whom I love so well. Specially welcome were, and will be, thoughts realised, artists' proofs, letters accompanied, when this is practicable, with specimens of the objects to which the manuscript refers.

Place aux dames—to a Queen of Spades who sends to me from the Royal Gardens at Munstead, by a Queen's Messenger (the postman), a beautiful and perfect flower of *Iris stylosa*, and writes—

Was it not a pleasant surprise for Christmas morning to find a good show of this lovely *Iris* on a plant in the open air? I sent some away on the same day, and left some to show you a day or two later, but a fall of snow spoilt them, and compelled me to wait for a new crop. It has never flowered with me quite so early before. I wish I had a spare corner, looking south, backed by a bit of wall or tarred fence; I would have such a border of flowers and greenery in full beauty at Christmas! On the wall would be *Jasminum nudiflorum*, and in the border great clumps of Christmas Roses and *Iris stylosa*, with Alexandrine Laurel behind and among (its beautiful foliage is now in perfection), and in front should be bordering patches of the large variegated *Periwinkle* and the mossy *Saxifrage*. The *Saxifrage* should grow close up to the Christmas Roses, and, in addition to its other merits, would save the flowers from splash.

Surely the recovery of that *Iris* from the storm, like the pretty little sister who laughs merrily as she shakes from her golden air the fraternal offering of snow, should give it a place in all our gardens. A single flower on my writing table (with its long, thin, sword-like leaf almost dipping in the ink, as though it wished to write home of its safe arrival) brightens my room, and reminds me of lines printed outside a song and under the portrait of a noble dame—

The beautiful and accomplished Lady Emily G—
Whose smile would make a summer where darkness else
would be.

And the idea of a natural winter garden is well worthy of our garden thoughts; a collection of all such shrubs and plants as would give us, weather permitting, fair flowers or leaves in winter. Might there not be, where space and spades abound, a garden of the seasons, the four compartments being so bounded as to be quite separate and distinct, which would beautifully illustrate our Laureate's description in "The Gardener's Daughter"—

The year increased. The daughters of the year,
One after one, through that still garden passed;
Each, garlanded with her peculiar flowers,
Danced into light and died into the shade.

Of winter flowers Mr. Groom very kindly sends me from the gardens at Linton, Kent, a box containing four varieties of seedling Primroses, white (double and single), yellow, and pink; the purple Gentian (*acaulis*), *Polyanthus*, Violets, Aconite, and the pretty little *Fuchsia microphylla*, and writes—

As you may not be so favoured as we are by climate in Kent for early outdoor flowers, I send a few, which I have just picked in a walk round, as they may present some Garden Thoughts which may be of interest to readers of THE GARDEN. To me they suggest the thought of that eternal spring to which we look forward with hope. How few appreciate the beauty or the blessings which surround us. We speak of "this poor dark world," and of this winter season as a dead cheerless time. Many seem to think there is nothing to see in a garden except in midsummer, and some cannot see it then. Nevertheless, though such blindness seems incurable, and we see no signs as yet of a millennium, I feel sure that the spread of horticulture amongst all classes is doing something to cheer many a life, especially that phase of gardening which does not overlook such

simple hardy flowers as may be grown by anyone who has a few yards of soil. Here the Primrose, Aconite, and Snowdrop find a congenial home, although we do not neglect the Orchid, nor your own favourite the Rose; and I trust that the pages of THE GARDEN will continue to make more popular a class of plants which has been too long neglected.

I think the Christmas Rose should be crowned Queen of Winter, so that a Rose may be queen always; but what an awful name those botanists have given it! He must have returned on ticket-of-leave from Botany Bay who called that pale, pure, beauteous flower *Helleborus niger*, and must have been thinking of the black villains, poisoners and garotters, whom he had left behind. Why have we not more of these charming "chalic'd flowers"? Because, chiefly, they like to be left to themselves, and we persist in mixing them with other plants, and in digging about and disturbing them. They don't like strange bedfellows, and we put them in large dormitories instead of single-bedded rooms. They like a warm well-sheltered place, and we put them anywhere. I saw them a few days ago blooming in happy abundance in the palace garden close by "Ely's stately fane," and some cut flowers were very tastefully arranged in Moss upon the dinner-table within. So that the wise and good prelate who rules that diocese seems to be a very superior horticulturist to his predecessor in that see who told the Archbishop of Canterbury that fruit was improved by the proximity of weeds—

The Strawberry grows underneath the Nettle,
And wholesome berries thrive and ripen best
Neighbour'd by fruit of baser quality.
(*Henry V.*, act i., scene i.)

though he may not be so extensive and expensive in his garden operations as the later bishop, John Morton, to whom the Duke of Gloucester said—

My Lord of Ely, when I was last in Holborn
I saw good Strawberries in your garden there;
I do beseech you send for some of them.
(*Richard III.*, act iii., scene iv.)

or those who made it so famous for its Crocuses that part of it was known as Saffron Hill, and so abundant in Roses that the zealous and learned Bishop Cox, when forced to make such terms as royal possessors chose to dictate as to the tenancy of Ely Place, reserved to himself and his successors the right of walking in the gardens and of gathering twenty bushels of Roses yearly.* But I must return to my letters.

A Northamptonshire friend, who is in horticulture a prince, though in his garden, one of the prettiest in England, only a squire at present, rightly reminds me that in enumerating the winter plants which are worthy of our admiration I must not omit those Ferns which still retain their graceful form and verdure. He says—

Just at this time I have much daily enjoyment from a bit of rock-work covered with winter-green Ferns, different varieties of *Scolopendrium*, *Polypodium*, and *Polystichum rotundifolium* and *angulare*. In a sharp winter like last year's even these would hide their half-frozen heads, but up to this time they have been real treats.

Perhaps some reader of THE GARDEN may be induced as I was by this communication to find attractions in the Fernery which he thought were gone. The *Scolopendrium vulgare*, or common Hart's-tongue, is especially fresh and glossy. A bachelor, who possesses a great antipathy to the gentler sex, once asked me, purposely pretending ignorance, what *Scolopendrium* meant? I told him it was so named from the Greek *Scolopendra*, a species of venomous insect like the centipede, and I read to him the reason why from my friend Mr. Lowe's excellent treatise on "Our Native Ferns" (vol. ii., p. 230), "because the lines of fructification resembled that many—

* See Rev. H. N. Ellacombe's interesting book on "The Plant-love and Garden-craft of Shakspeare," p. 198 and 220.

legged, crawling animal ;" and the morose misogynist made answer, "Long, smooth, venomous, hundred-footed ; why don't you give it its right name, and call it Woman's Tongue?"

Indeed, there still remains, in this favourable season, infinite beauty where there are eyes to see it. Close to the Ferns of which I have just written I saw a striking contrast of russet-red, and green, and silver, produced by the leaves of an *Epimedium*, which grows out of a clump of the variegated *Periwinkle* (*Vinca major*), and not far from this the *Golden Retinospora* (*plumosa aurea*) rises from a silver floor of *Arabis*. I regard this *Retinospora*, which has held its own against two very cruel winters, as one of the most precious of those acquisitions which have been so graciously and freely awarded in these latter years to the determined energy of our explorers, amateur and professional.

And while I am thinking of beautiful leaves I am reminded of another kind communication which I have received from Cannes, in reply to my enquiry as to the relative merits of the *Ampelopsis* introduced by the Messrs. Veitch, and bearing their name, and the dear old Virginian Creeper. The writer, J. H. Thomas, says :—

I have grown Veitch's *Ampelopsis* since its introduction in 1867. With me it colours more finely than the old Virginian Creeper, being less dependent on a sunny aspect, and it contains shades of pink, mixed with the crimson, which I have not noticed in the older variety. Opinions, I suppose, would differ as to the relative merits when in green leaf. The Virginian Creeper has a more graceful habit of growth, covering a wall with its festoons. Veitch's, on the other hand, has glossy, not dull leaves, and clings without artificial help. *Ampelopsis* Royli is a good and distinct variety, the foliage turning to a maroon-red, instead of crimson, in autumn. P.S.—I had almost forgotten the greatest recommendation of A. Veitch, namely, that the red leaves remain without falling fully a fortnight longer than those of the Virginian Creeper.

"Captain Cuttle" bids me find, and when found make a note of, the striking effect produced by a combination here and there in plantations and shrubberies of the Silver Birch with the Austrian Pine, Yew, Cedar, or other evergreen trees, and I fully agree with the distinguished mariner that the bright boles gleaming among the dark foliage are pleasant features in a landscape.

For other letters, sympathetic and complimentary, "evermore thanks, the exchequer of the poor ;" but what am I to say to my only aggrieved parishioner, I mean angry correspondent, who, "having accidentally met in the house of a neighbour with a paper called THE GARDEN (what a happy, honourable day for this obscure and depraved publication!)," is surprised to find a clergyman and a florist raving about a bunch of Roses at Christmas, and so, with a covetous craving for artificial luxuries, flying in the face of Providence, not to mention Shakespeare. Because if Providence had thought it right that we should have Roses at Christmas they would have come to us without any forcing, and because the greatest of all uninspired writers has said,

At Christmas I no more desire a Rose
Than wish a snow in May's new fangled shows,
But like of each thing that in season grows.

But it is just what one would expect from a redhot Ritualist, which you are well known to be, to be absorbed in æsthetics, and hothouse flowers, and sentimental trash, instead of looking after your parishioners. Some shepherds" (here comes the cruel, crushing climax) "think more of their flutes than of their flocks."

Well, I must plead in defence that neither Mr. Henderson, who grew the Roses, nor I who accepted them, had the least

idea of flying anywhere ; that He, Who makes the garden, gives the gardener his art ; that Shakespeare would have written joyful sonnets could he have seen such a precious posey ; that so far from being redhot, I have serious thoughts of asking my housemaid for another blanket ; that I do not deserve to be called a Ritualist, because I am not as yet in jail ; and that, if my correspondent will come to Caunton, and will tell my old people, and poor folks, and children, whom I will assemble for the purpose, that they are neglected and uncared for, I venture to prophesy that he will receive some such response as was given at a confirmation by a small boy to a great bishop, who, under a strong but erroneous impression that the candidate had been previously confirmed, sent him a message to that effect by his chaplain. The clergyman whispered in his ear, "The bishop says that you have been confirmed." "Then," replied the youth, with more regard to truth than to politeness, "he's a liar!"

Caunton Manor, Newark.

S. R. H.

ORCHIDS.

ORCHIDS AT THE FIRS, SYDENHAM.

THE Orchids in Mr. Dorman's garden at The Firs is another of the several noteworthy collections that exist in the neighbourhood of Sydenham, being only a few minutes' walk from that of Mr. Cobb, Silverdale Lodge, to which we alluded last week. Though Mr. Dorman's collection is considerably more numerous than that at Silverdale Lodge, there are similar indications of skilful culture in every house, which shows plainly that the particular requirements of every kind is well understood. The houses are constructed chiefly with span roofs, not too high, but of such a height that plants of moderate size may be placed on the stage close to the angle at the spring of the roof without touching the glass. The ventilation is effected by means of openings in the roof, but principally by openings in the side walls beneath or on a line with the hot-water pipes, so that the air may be warmed on entering. An important item in the construction of these houses are the capacious tanks for the storage of rain water from the roofs. As an ample supply of soft water is positively indispensable to the successful culture of Orchids, or indeed of any other kinds of tender plants, the importance of providing for its storage cannot be overrated ; therefore intending Orchid house builders should pay particular attention to this point. We noticed near Mr. Dorman's Orchid houses a spacious circular tank, which appeared to be supplied from the adjoining dwelling house, so that the inside tanks were supplemented by this large outer tank. If possible, tanks inside the houses should be so arranged that a hot-water pipe may run through them, so as to slightly raise the temperature of the water. The houses are glazed with good clear glass in large panes, also an important point in Orchid houses, as bad glass is so apt to burn the leaves. There is also ample provision for effectually shading the plants by means of canvas on rollers, which, when not in use, run up underneath a projecting ridge or coping. We noticed that on the stages, which seemed to be of solid slate, the fine white Derbyshire spar was much used for placing the pots on ; it has a good appearance, and is not liable to become soon green ; moreover, it retains water a long time, which evaporates steadily from it.

The *Cattleya* House was filled to overflowing with a remarkably fine collection both as regards number of kinds and finely grown specimens. The rare and difficult to manage *C. Dowiana*, figured in THE GARDEN (Vol. XII., p. 448), was as fine as any plants we have seen of it, the growths being stout and healthy, and developing flower-sheaths. The same remark applies to *C. Mendelli*, *C. Warneri*, and the innumerable forms of *C. Mossiæ* and *Trianae*, as well as the rare white-flowered variety of *C. Skinneri*. The dwarf-growing *Cattleyas* and *Lælias* are grown on blocks suspended near the roof, a position in which they acquire great vigour.

An adjoining house devoted to cool Orchids, principally *Odonoglossums*, likewise comprised a healthy houseful of plants, most of which are throwing up flower-spikes, which in a few weeks will

make a fine display. The atmosphere of this house was very cool and refreshing after coming from the warmer compartments. *O. vexillarium* is grown in a warmer house than the main collection of *Odontoglossums*, and we were informed that about 600 flowers were expanded at one time last season, which must have been a glorious sight. The "breaks" formed on the plants this year are also remarkably strong. We noticed in the collection of *Dendrobium* some healthy plants of *D. Falconeri*, an Orchid so difficult to grow well. They were attached to large sections of Tree Fern stumps, apparently a capital plan of growing it, as the Fern stumps are more retentive of moisture than ordinary wood blocks. It would, we think, confer a benefit upon beginners if experienced cultivators would give their opinion as to the best material for blocks, a point on which there seems to be considerable diversity of opinion, some thinking cork the best, others Tree Fern blocks, and others again wood, and sometimes charcoal, and in this collection we noticed some Orchids flourishing finely on pieces of charcoal, particularly *Dendrobium Cambridgeanum*, which seems to like such treatment. We observed some fine plants of *D. Wardianum* in pots with the stems tied erect to sticks, a plan quite as satisfactory apparently as that of allowing the stems to hang freely, as in baskets.

Orchids in Flower.—The first that attracted our notice in the Cattleya house was a plant of the charming little *Cattleya bulbosa*, or *Walkeriana*, as it is often called. A couple or so of blossoms were expanded, and the delicate satiny lustre of the rosy-lilac sepals, the violet-purple margined lip veined with golden streaks was very beautiful. The plant, a large one with many bulbs, was growing on a suspended block near the roof, and it seemed to be as flourishing as it possibly could be on the smooth barked trunks of *Jacaranda* in the Brazilian forests, its native habitat. This beautiful little species ought to be found in all selections of Orchids, for though somewhat difficult to manage successfully, it well repays any extra attention bestowed on it. All the spring-flowering *Cattleyas* and *Lælias* were developing quite an array of flower-sheaths, and when the blossoms are at their best the house must present a striking appearance. *L. albida* and its several forms—bella in particular—were finely in flower, and when so well grown as here, with numerous flower on a spike, *L. albida* is scarcely inferior to the popular *L. anceps*, which, with its varieties *rosea* and *Barkeriana*, were attractively in flower. The extremely rare white variety of the last-named *Lælia* exists in the collection, though not in bloom. *Dendrobiums* were represented in flower by early blooms of *D. Wardianum*, heterocarpum, or aureum, as it is sometimes called, *D. moniliforme*, the latter a pretty variety similar to *D. nobile*, but more desirable for early-flowering, and *D. primulinum*, with sulphur-yellow, shell-like, lipped blossoms; the large-flowered variety named *giganteum* is so superior to the ordinary kind, that, if possible, it should be grown in preference. We never remember seeing such finely grown specimens of that scarce Lady's Slipper, *Cypripedium Schlimi*, with its small pouch-like carmine flowers, as we saw here. The plants were remarkably vigorous, the leaves long and of a bright healthy green, and the flowers plentifully produced on long branching stems. No traces of thrips or other insect pests were discernible on the foliage, as is usually the case with this and allied *Cypripeds*. In the choice collection of *Pescatoreas*, *Bolleas*, and similar genera, which were growing in a moist atmosphere, having a temperature about 60°, there were several in flower, notably the rare *P. Klabochozum*, with wax-like blossoms, white and tipped with a purple-violet tinge.

W. GOLDRING.

Flower-sheaths of *Cœlogyne cristata* Decaying (*M. C.*).—The house in which your plants are placed is no doubt too hot and moist for this Orchid at the present period of growth. Try it in a cooler and drier atmosphere.—G.

Dendrobium Cambridgeanum blooms on the young growth about April or May, the flowers appearing in twos or threes at the nodes opposite the fresh green leaves. The flowers appear soon after the last leaf is developed and before the bulbs begin to ripen. It is generally considered rather a shy blooming species, but it requires to be grown strongly and in the full sunshine in an intermediate temperature. Well grown, it is very beautiful. It should now be pushing up its young growth.—F. W. B.

Oncidium cucullatum.—This is one of the prettiest of the smaller growing *Oncids*, and as it flowers in midwinter it is par-

ticularly desirable for cutting purposes, the long slender stalks, terminated by loose clusters of flowers, having deep chocolate-tinted sepals and a large panduriform lip, varying from pale rose to a deep purple, and more or less copiously spotted with rich violet-purple. There are several varieties of it, the most distinct being *nubigenum*, *giganteum*, *flavidum*, *macrochilum*, and *Dayanum*. Of these, we saw, a few days since, several plants in flower in the rich collection in the Victoria Nurseries, Upper Holloway.—W. G.

NOTES ON ORCHIDS IN FLOWER.

Dendrobium moniliforme.—This and the following are some of the more remarkable among the many Orchids in flower in Messrs. Veitch's nursery at Chelsea. *D. moniliforme* is an extremely pretty species. An old introduction from rather high districts on the Himalayas, therefore it can be grown in a cooler house than the majority of its congeners. It bears some resemblance to the well-known *D. nobile*, but the stems are more deeply articulated in a bracelet-like manner, and the flowers are somewhat smaller and are produced in greater profusion. The colour is a pleasing rosy carmine at the base of the sepals, gradually deepening into a deeper hue. On account of its flowering some weeks in advance of *D. nobile* it is a highly desirable kind, and we have never seen more finely flowered plants of it than those under notice, which quite enliven the whole house they are in. This kind is known also as *D. Linawianum*.

Dendrobium Domini.—This is a hybrid variety, the result of a cross between *D. nobile* and *D. moniliforme*. It partakes strongly of the characters of the latter species, though its parentage on the other side is also clearly discernible. Its colour is similar to that of *D. moniliforme*, and, like that kind, it is most valuable for cutting purposes in midwinter.

Cypripedium oenanthum.—Of the many hybrid Lady's Slippers that have emanated from Messrs. Veitch's nursery of late years, this we consider to be one of the most distinct and handsome. Its parents are *C. Harrisianum* and *C. insigne*, both fine kinds. It is an excellent cross, the colours of both flowers being incorporated in the progeny in a most effective manner. The whole flower shines with a glossy lustre, as if it were varnished; the upper sepal has a greenish ground, spotted, as in *C. insigne*; outside this is a vinous-purple, edged with pure white. The lateral sepals are a shining reddish-purple, and the large, elongated pouch is of a similar hue. Altogether it is an effective plant, and the flowers stand out boldly, thus showing off their beauty to the best advantage. The foliage is slightly mottled, as in that of *C. Harrisianum*.

Comparettia falcata is a charming little Orchid, not often met with, though it has been introduced many years from South America. It has small, shining bulbs, solitary, lance-shaped leaves, and long thread-like, drooping flower-stems, bearing some half-a-dozen blossoms, the broad lips of which are of a clear rosy-pink hue. It is, on account of its colour, sometimes called *C. rosea*.

Leptotes bicolor.—This is a pretty Orchid when well grown and flowered, and the plant we saw of it in the Chelsea nursery the other day was as fine as we have ever seen it. It was growing in a suspended basket, and was literally a mass of flowers 6 in. across. The pure white sepals and deep purple lips render the blossoms very showy amidst the singular cylindrical foliage. The fruit, which is easily obtained by artificial fertilisation, is said to resemble that of *Vanilla*.

Angræcum sesquipedale.—At present flowers of this extraordinary Madagascar Orchid may be seen plentifully in several Orchid houses, as a large importation consisting of medium-sized plants is nearly all producing flowers, which, though not quite as large as those borne on large specimens, are nevertheless very attractive, and more than all shows plainly that the species is not such a shy flowerer as is generally supposed.

Rare *Odontoglossums*.—The house devoted to this genus contains a large number of kinds in flower, and among them several either rare or not often seen in flower. We give a list without description, as the distinguishing points of many of the kinds are so close that they need to be seen to recognise them. These kinds are: *O. Coradinei*, *crocidipterum prænitens*, *Chestertoni*, *blandum*, *nevadense*, *pardinum*, *tripudians*, *anceps*, and several uncommon forms of *O. crispum* and *cirrhosum*.

Cypripedium porphyreum.—This is a hybrid between *C. Schlimi* and *C. Roezli*, and is similar to the now popular *C. Sedeni*, and appears to be equally vigorous and free flowering.—W. G.

COUNTRY SEATS AND GARDENS OF
GREAT BRITAIN.*BLenheim.*

THE history of Blenheim is too well known to require recapitulation. At first sight, and as seen from the north side, the heavy effect of the building is disappointing, the south or garden front being much the more pleasing of the two. So well is the grouping of trees done, both evergreen and deciduous, that one enjoys the picture thoroughly. There is, however, one flaw in it, and that is, the iron fence that runs at right angles with the palace and divides the dressed lawn from the park. In all such positions the dividing lines should be imperceptible and formed by a Haw-haw. The park, which

decrepitude, that it would be an act of vandalism to cut them down. Elm and Beech have been largely planted, some of the former towering to a height of 100 ft., and the latter developing every variety of habit of growth, from dwarf, compact, erect-branched trees to those that are tall and pendulous. As evergreens, common, black, and silver Spruce Firs predominate, but the kind of all others that, as it were, gives the finishing touches to the picture is the Cedar of Lebanon. Some groups of this Cedar on the banks of the lake opposite the north front of the palace are indescribably beautiful; the trunks range in girth from 20 ft. to 30 ft., and several of the trees measure over 100 ft. from outside to outside of the branches, and, as in the case of Beech, there is a greater variety of form in the Cedars growing here than



Blenheim. View from garden side, 1880.

is 14 miles in circumference, contains 3000 acres, and varies in formation from perfectly level ground to that which is deeply undulated; the soil, a moderately stiff loam, lies on limestone. The planting of lines, groups, and belts of trees is simply perfection. It seems as if the artist ("Capability" Brown) had studied intimately every detail of his picture before commencing it. One thing, at least, he evidently did consider, and that was the large space with which he had to deal, giving breadth of turf and large or small tree groups or single specimens as they best befitted the positions they were to occupy. The result is an unrivalled piece of landscape scenery—grand, first of all, for its extent, and next for its natural artistic effects. The variety of trees used in the park is somewhat restricted. Oaks predominate, and of these there are many extra fine specimens, ranging in girth of bole at 4 ft. from the ground, from 25 ft. to 35 ft.; many of them have, however, seen their best days, but are so handsome in their

we had ever imagined could be the case. Some trees are perfectly cone-shaped and formal; others flat, sending out boughs in true horizontal lines; whilst others have a drooping habit. The effect produced by these noble trees is considerably heightened by the position they occupy, namely, the banks of a most naturally formed lake of more than 250 acres in extent. The appearance of this lake, combined with the undulating character of the ground in this part of the park, as seen on emerging through the archway that forms the Woodstock entrance, is very beautiful.

The Flower Garden and Pleasure Grounds are 140 acres in extent, much too large to be fully enjoyed by their owners or kept in perfect order—at least, without much labour. Considering the extent, however, flower gardening, in the strict sense of that term, is very limited indeed, and it would be a great improvement were it more so, at all events to the extent of filling in to the natural ground level

and turfing over the so-called Italian garden situated at the east end of the palace. Whoever first suggested the forming of a garden of this description immediately contiguous to such a building as Blenheim lacked the essentials of a true artist. All the natural beauties and surroundings are here ignored, and in their place we have scrolls of Box, sand, and coloured stones, in no way in keeping with other parts of the grounds. The most suitable place for flower beds is at the west end of the palace, where the ground gradually recedes to the lake; here there are some few beds, and the gardener, Mr. Crump, is making others that are to be filled entirely with hardy plants. The main portion of the pleasure grounds slope gently to the lake, but there are plateaux here and there, and on one of these there is a Rosery. The Cedars in the foreground of the accompanying illustration are perfect specimens, the largest being 26 ft. in girth, 120 ft. through, that is from tip to tip of branches, and 90 ft. high, the head being massive and conical. Other fine trees in this portion of the grounds are a Plane, 100 ft. high, with a girth of trunk of 14 ft.; a Copper Beech, 80 ft. high, with a girth of trunk of 12 ft.; *Picea Pinsapo*, 50 ft. high, well furnished to the ground, and 116 ft. in circumference, measuring from the bottom tips of branches; of *Taxodium distichum* several trees are 60 ft. high, and have a girth of trunk of 10 ft. *Abies Morinda* is 50 ft., and perfectly furnished; and of *Cedrus Deodara* there are several good specimens from 60 ft. to 70 ft. in height. Lower down in the grounds there are also several fine groups of evergreen Oaks, the largest being about 70 ft. in height. Some noble specimens of the Tulip tree may also be seen here; indeed, an avenue of them 140 yds. in length, and also an avenue of deciduous Magnolias 100 yds. long. There are, moreover, many and good specimens of the rarer hardy trees, such as *Catalpa*, the Judas Tree, *Salisburia*, *Virgilia*, *Paulownia*, and *Acacias*. The soil being on limestone, *Rhododendrons* and American shrubs generally do not thrive in it; but this defect is more than counterbalanced by the profuse growth made by Laurels, both common and Portuguese; of the latter one specimen measures 126 yds. round. At the lower end of the lake a light iron bridge leads to the rock garden, and from this point is to be seen the most picturesque scenery in the whole grounds, embracing the towers and north-western side of the palace, the grand bridge that spans the lake opposite the palace, and the large expanse of water, the whole picture being framed, as it were, by overhanging trees of various colours and habits. At this point, too, there is a cascade or waterfall, a little bit too artificial, perhaps, but unavoidable on account of the height and weight of water necessitating the use of buttresses of giant size.

The Kitchen and Hardy Fruit Garden is 12 acres in extent, and is surrounded by walls 14 ft. in height, almost the whole of which have been replanted with young trees, and now may be found here the finest Apricot trees any one could wish to see. Peaches, too, are equally good, Mr. Crump attributing his success first of all to planting in maiden loam, not a particle of the old garden soil being used, and next to spring protection by means of Parham's wall coping, consisting of glass 3 ft. wide fixed in an iron framework, and, being removable, taken down directly all danger from frost is past. Other wall trees, consisting of Pears, Figs, Cherries, and Plums, are in like vigorous health, and so are the large quantities of pyramidal, espalier, and bush-form of trees growing in the open quarters of the garden. Pears on the Quince and Apples on the Paradise stock fruit the most freely. The soil, as has been said, being largely impregnated with limestone, the only Strawberries that do really well in it are Sir Joseph Paxton, President, and Vicomtesse Héricart de Thury.

The Fruit and Plant Houses here are very extensive, but having been built at various times the arrangement is not of the best description; nevertheless, they are made to answer their purpose admirably. There are three houses, each 32 ft. by 18 ft., devoted to the production of early Grapes, Black Hamburg being the principal variety grown. One house, 50 ft. by 18 ft., is filled with Muscat of Alexandria and three others of like dimensions are set apart for the main and late supplies of Grapes, the sorts grown being Alicante, Lady Downes, Mrs. Pince, Gros Colmar, Trebbiano, Alnwick Seedling, and Barbarossa. There are three Peach houses, each 30 ft. by 14 ft., one large house for Figs, and also a large orchard house, in which the trees are planted out and grown in bush and pyramidal form, together with pits innumerable for the culture of Cucumbers, Melons, Strawberries, and French Beans.

The Plant Houses consist of two span-roofed structures 40 ft. by 18 ft., one devoted to stove and the other to greenhouse subjects, small plants suitable for room decoration being in request rather than large specimen plants. In the first-named house are some superb examples of Poinsettias, Crotons, Dracaenas, and Orchids, and in the greenhouse *Bouvardias*, *Linum trigynum*, *Salvia splendens* Bruni, *Celosias*, and *Lantanas*, and plants of similar character. There is a Rose house 60 ft. by 18 ft., entirely set apart for the production of cut blooms. Here the Roses, which are planted out, are in luxuriant health, the sorts grown being *Maréchal Niel*, *Niphetos*, *Homère*, *Lamarque*, *Madame Falcot*, &c. There are numerous other houses and pits devoted to the growth of Pelargoniums, the forcing of shrubs and bulbs, and the production of bedding plants.

The Fruit and Grape Rooms, though formed out of old buildings that were never intended for such a purpose, are models of what such rooms should be. In short, order and good keeping characterised every department, and last, but not least, the young men are lodged in rooms worthy to be called working men's dwellings. H.

Fuel for Saddle Boilers.—I can assure "Subscriber" (p. 11) from my own experience that coke can be used as fuel for a saddle boiler with as good results as coal. We have now a terminal-end saddle boiler in which nothing is used but coke, and it gives every satisfaction. If "Subscriber's" saddle is not set directly over the furnace he may well be dissatisfied with the heat it affords, and he might not improve matters much by burning coals instead of coke. Much more depends on the way in which a boiler is managed than on the construction of the boiler, provided it is properly set and fitted with the necessary appliances for its economic management. All saddle boilers that I have ever seen are placed over the furnace bars, and it is this bringing their surface into direct contact with the fire that gives them their power. This power is considerably augmented or diminished by the flues being kept constantly clean or never cleansed at all, and by a proper use of the "damper" to moderate the draught, which otherwise allows half of the heat to escape by the chimney. With a brisk draught for a short time in the morning a bright fire is got up; add more fuel, and put the damper in so that the smoke can just get out; close the furnace door and leave the ashpit door open. This will insure a slow fire which will last some time, and but little heat will be wasted. In the same way in making up the fire at night apply the damper, and shut both furnace doors, and there need be no fear but all will be right in the morning, provided the furnace doors are tight fitting. If "Subscriber" cannot get a fair amount of heat from his boiler by the above management, there must be something wrong with it which he does not explain beyond its not being directly over the furnace.—R. J.

— Allow me to inform "A Subscriber" (p. 11) that we burn coke and coal under our saddle boilers here, but as as much heat cannot be got out of coke as coal, we mix coal with the coke in cold weather, more or less, as may be needful. In mild weather coke alone is used and found sufficient. A saddle boiler will burn either fuel, but conical boilers, such as I have had experience of, will burn coke only. Coal or "slack" of coal, which we use—that is, small

coal from which the lumps have been screened—cakes in the conical boilers and the fire goes out or burns imperfectly. For this reason we have had to give up the use of coal in the latter entirely. The best way to burn coke in a saddle is to fill the furnace pretty full of coke, so as to get a good hot mass and leave it, regulating the draught by the damper.—J. SIMPSON.

THE FLOWER GARDEN.

MUNBY'S VIOLET.

(*VIOLA MUNBYANA*.)

Not the least important of the plants which the late Mr. Giles Munby brought from Algeria to enrich our hardy garden flora is the pretty Violet represented in the annexed engraving. It is one of the most desirable of all the cultivated species of *Viola*, which altogether number about half a hundred, as it is a free grower in almost any soil, and always produces an abundant crop of flowers every year in early summer, continuing in beauty for several weeks. The blossoms are a deep purple-blue, and its habit of growth is similar to that of *V. gracilis*, also a valuable border plant, but not such a robust kind as Munby's Violet. Of other desirable species of *Viola* we may mention *V. cornuta*, now well known as a showy bedding plant; *V. pedata* and its beautiful variety *bicolor*; *V. cucullata*, with blossoms variegated with white and purple, and of similar



Munby's Violet (*Viola Munbyana*).

form to that of the common Violet, but considerably larger; *V. palmata*, said to be a variety of the preceding, is also a desirable kind. Then there are *V. mirabilis*, *V. calcarata*, *V. Fischeri*, and *V. elatior*, all of which are showy enough to be included in a select list of hardy flowers. They are all amenable to the simplest culture, merely requiring to be planted in ordinary good garden soil along the margins of the border, or they may be grown with excellent effect on rockwork, where they flourish to perfection provided the soil and situation are not too dry in summer. If the position of the border be a dry one, much benefit will be derived by placing close round the roots a few good-sized stones or bricks, sunk to the level of the soil; these prevent the ground from becoming excessively dry, and the roots run beneath and around the stones and seem to like the situation. All Violets are partial to a little shade, in which they no doubt thrive best, but the shade might be dispensed with if sufficient moisture can be supplied to the roots in the driest part of the summer. At Kew, where the soil is of a very light description, and therefore very dry in summer, it has proved a good plan to sink four ordinary roofing tiles, so as to enclose a square hole, and at the bottom to place the plant. This method prevents the soil from becoming too dry, and a little shade is afforded by the tiles, but as it is by no means an elegant plan of growing Violets, we cannot recommend it for ordinary gardens. W. G.

Erythrina Crista-galli.—Why is this plant so seldom seen in gardens nowadays? Formerly one often met with it thriving vigorously in some sheltered place, where when at rest the roots

were dry and warm. This old inhabitant of our gardens possesses a considerable share of beauty, and offers to other flowering plants a decided contrast. In the case of large specimens, where growth is luxuriant, the clusters of coral-red flowers are very effective. In any warm corner of the garden, where the soil is light, the Coral tree will thrive, and if afforded some little protection in winter will freely increase in vigour and beauty. Perhaps the most satisfactory manner of growing this plant is to lift it in the autumn and stow it away in a cool house or frame, planting out again in rich free soil in May. In this way it gets a start early in the year, and consequently comes into bloom at an earlier period than when it remains in the open ground. No matter in what way the Coral tree may be grown it will be found to well repay the care involved in their culture.—J. C. B.

FRANCOAS, THEIR CULTURE AND PROPAGATION.

The flowers that a plant produces may be individually beautiful, and yet little suited for using in the many floral arrangements now adopted. Collective effect in the spike or raceme is of much more consequence. Some of the simplest flowers, taking them singly, are most pleasing when in combination with others, such as the elegant racemes of *Francoa ramosa*, which, for using in a moderately tall stand, have few equals. There are those who are guided by fashion in the form of the stands they use, which at one time may be simple and elegant, and at another flat and dumpy, in the latter case not admitting of anything being arranged in them that is more than a few inches in height. Yet there are many who hold to that which admits of a freer, more elegant arrangement, even if it is old-fashioned, such, for instance, as the single trumpet-shaped stands that were at one time used. So telling are the tall, thinly-furnished racemes of *Francoa ramosa*, that wherever present in a competing dinner-table arrangement they seldom fail to score a point in favour of the exhibitor who employs them. Independent of this, the plant, when in bloom, is equally adapted for use in the conservatory or greenhouse, as it contrasts well in its general appearance with other things. The Francoas are herbaceous and natives of Chili; they are nearly hardy, and do well in a cool greenhouse. Although they have been long known in this country, they are rarely met with in such numbers as their merits entitle them to, especially *F. ramosa*, for where a sufficient quantity of this kind is grown to admit of its being freely used, it is then that its tall slender flower-stems produce a telling effect.

Seed Sowing.—Francoas are propagated from seeds. I have sown them at different times from February to midsummer, but prefer the earlier period, as then the seedlings have all the season before them to attain strength; the seed should be sown in a well-drained pan filled with sifted peat to which enough sand has been added to keep it open, pressing the soil down smooth, not sowing the seeds too thickly, and only just covering them with a little of the finest soil. Before sowing see that the material is moist enough without being too wet. Put a sheet of glass over the top of the pot; this will help to keep the surface damp and so avoid the necessity for giving much water until the seeds have vegetated; stand the pan in a temperature of 50°, which will be quite warm enough. As soon as the seedlings make their appearance, dispense with the glass over the pot, give water as required, standing the plants where they will get a fair amount of light. When they are big enough to handle prick them out 2 in. apart in large pans of well prepared soil; either peat or good loam will answer; if the latter is used in addition to some sand add one-sixth of leaf-mould. They will get on faster for a time this way in pans than if put at once into little pots, on account of the soil being more easily kept in right condition as to water. By the end of May remove them to a greenhouse or frame, keeping them moderately moist, and giving air daily. Before the leaves get crowded place them singly in 4-in. or 5-in. pots, and encourage them to make growth. Some of the strongest will most likely want to produce flower-spikes towards the end of summer, and if flowers are wanted they may be allowed to bloom, but if the object is to get the plants as strong as possible the second year, it is well to pinch them out; if, before the autumn is too far advanced, any seem to be short of room give them pots 1 in. or 2 in. larger, encouraging them to root into the new soil before winter, during which season they will do anywhere out of the reach of frost, keeping them a little drier at the roots through the dormant time. In the spring those that were not potted in the autumn must be shifted, regulating the size of the pots by the strength of the plants. This season they may be expected to bloom well. I found that at the time the flower-spikes were about to make their appearance they were much strengthened by weak manure water once a week.

F. ramosa is the best known, and may be looked upon as the handsomest and most useful kind; its pretty white flowers stand conspicuous amongst anything else with which they are associated.

F. appendiculata bears reddish-crimson flowers, and makes an effective pot plant. A. Z.

CHRISTMAS ROSES CUT AND IN POTS.

I CAN fully endorse all that "A. D." says (p. 10) in favour of these, for unquestionably they are the most useful plants that can be grown for decorative purposes or for supplying cut flowers in winter, a fact that is being made clear to some at least of the caterers for markets, as one supplying a large country town remarked to me the other day that if he had only a few hundred, they would bring him a living during these months, so freely do the blooms sell, especially if they have been grown under the protection of hand-lights or frames, as then they become pure white and are very choice looking. Valuable as they are for cutting, they are even more so in pots for the embellishment of windows and greenhouses or conservatories, where, associated with coloured Primulas or scarlet Pelargoniums, they show themselves off to the greatest advantage. The free-st flowering variety is the common Hellebore, but the finest is *H. niger maximus*, which has much larger blooms with massive spreading foliage, and is a very desirable kind for growing in sheltered warm situations, such as the margins of Rhododendron beds or shrubbery borders, positions in which they do remarkably well and look quite at home.

The best way, however, if they are wanted for cutting from or to lift for potting is to prepare a place specially for them, as then, being together, they can easily be protected by the aid of any spare lights. Being gross feeders, the soil in which it is intended to plant them should be enriched with rotten manure, and have plenty of leaf-mould or refuse peat worked into it, of either of which Christmas Roses are particularly fond, and having large fleshy roots, such loose open material admits of their free ramification, and is of great assistance in growing good plants.

At one time Christmas Roses were thought to be difficult to propagate, but I have never found them so, as they admit of being divided to almost any extent. The best time to do this is in spring, just as they are starting, as then the wounded parts heal quickly, and soon emit roots. The way we managed ours was to dig the old plants up, and after shaking all the soil from them, they were separated into as many pieces as they would make by pulling the crowns apart, when they were at once planted carefully with a trowel at about 15 in. asunder. This distance affords ample room for the spread of their foliage, and the encouragement of this must be the aim of the cultivator, as the development of the crowns and their capacity as regards blooming depends principally on the leafage they make. To aid them in their growth during summer give them liquid manure, of which they should have several thorough soakings after being mulched to keep the ground cool and prevent it from cracking. If required for pots, the best plants should be lifted at the end of October or early in November, and after being potted they should be placed in cold frames, from whence they may be brought and placed in a little warmth to bring them forward as wanted. Outdoors these Hellebores seldom or never seed, but in pots in a dry greenhouse they appear to do so freely, as pods on most of ours are this year swelling fast and will soon begin to ripen. S. D.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Readers of THE GARDEN will greatly oblige the editor by answering the questions of their fellow-readers according to their own experience in this and all other departments.

Procuring Sub-tropical Plants.—Where or how can I get some things whose names do not appear in any catalogue, either English or Continental, that I have seen. There are some such as *Aralia canescens*, spinosa, and *edulis*, and several of the *Cannas*, for which one does not like to trust to the chance of synonyms if possible. I shall be much obliged for any information or help.—H. V. [*Aralia edulis* is a herbaceous species which is grown in botanic gardens, and could be had from some of them; not being a showy plant as regards flowers, it may be more difficult to get in nurseries. It has fine foliage, however, and is worth growing in the wild garden in rich soil. *A. spinosa* is a well-known shrubby species, which should be obtainable from any good shrub or tree nursery. If any *Cannas* are not obtainable in the London trade (we believe Messrs. Hooper make a specialty of them), M. Chaté, of Paris, has a good collection of them.]

Trillium Culture.—Will any of the many growers of hardy flowers who read THE GARDEN tell me the conditions that suit these plants, which I admire greatly, but which do but slowly with me?—J. H. H.

Lastrea elongata Hardy in Ireland.—This Fern is hardy here, as I have grown it in an open Fernery since 1875. It produces perfect fructification on fronds at least 18 in. long. I bought it of an English nurseryman as *L. cristata*. *L. elongata*, a native of Madeira, has been treated exactly like other hardy British Ferns, and has stood well through the winters, and notably the exceptionally severe winters of 1877-8 and 1878-9, losing its fronds, but the root remaining perfectly healthy. I may mention that in this part of Ireland (Co. Kilkenny) the only Fern which is common to Madeira and the south of Ireland (*Trichomanes radicans*) will not exist in the open air, and that *Asplenium marinum*, which had flourished for six years in the roof of a cave that was made for it, was killed by the severe frosts of the winters 1877-8 9.—JAMES GRAVES, *Inishag*, in *Gardeners' Chronicle*.

EFFECT ON VEGETATION OF VIOLENT WIND-WAVING.

"SWEET are the uses of adversity" has been a favourite theme with preacher, moralist, poet, and economist, and many a poor wretch, sorely battered by trouble, has derived comfort in welcoming this truth; but one hardly expected to see the same horticulturally illustrated in our GARDEN experiences. Yet on pages 22 and 23, Mrs. M. Syme, of Jamaica, has portrayed in a forcible example how, in natural life in the Tropics, the violence of a cyclone, productive apparently of ruin, is in reality the parent of new life—the restorer of new vigour. She writes (and I trust your readers will excuse my iteration of her remarks, on the plea of the great importance of the subject): "At first we saw with dismay the awful effects of the cyclone of the previous night, and the apparently complete ruin and desolation wrought in every part of the garden; it seemed utterly impossible that the 'howling wilderness' could for very many years, if ever again, 'blossom as the Rose.'" How many poor sufferers in life, contemplating the wreck of their shattered fortunes, their peace of mind gone, their powers shaken, their bodily vigour it may be all but gone, have uttered like remarks; and yet a little while, a week or more later, Mrs. Syme writes: "Strangely enough, the thorough 'shaking up' of the plants, even to the very roots and fibres, appeared to have given them a fresh impetus as regards growth, and even some sickly, scraggy old trees, bare almost of verdure before the gale, seemed after it to have gained a new lease of life, and burst gaily into budding leaves in company with their younger neighbours." Again: "An ugly, scrubby, almost lifeless-looking *Erythrina Crista-galli*, with twigs almost leafless, and flowers few and far between, since the storm has rapidly developed into a handsome, healthy, bushy plant, and each of its numerous shoots is terminated by a long bright flower-spike."

"Many of the Palms whose lives were despaired of are sending out fresh leaves, and the tall tree Ferns have replaced the broken and battered remnants of their storm-beaten fronds by others more luxuriant and lively. Flowers and shrubs, that we had not seen in blossom before, are now blooming profusely." What a beautiful and comforting illustration for the poet and preacher!

But, apart from sentiment, have these points been noticed before? If so, will some one quote references? and will not some physiological botanist give us the why and wherefore, the *modus operandi* by which under a "thorough shaking up" the old becomes young again?

No one who has looked at trees in a storm can have failed to observe the great exercise they are subjected to, not merely in the smaller boughs clashing about, but in the swaying and creaking of the larger branches; also, the moving of the trunks to and fro even of large trees, and the consequent strain upon the roots under the soil—all are more or less in motion from the violent pressure exerted upon them. Surely, this energising process must enforce new circulation previously stagnant wherever there is cell growth.

Possibly, light may be thrown on this point by remembering what takes place in our own bodies. "A brisk trot for fifteen minutes will cause more pressure upon and stimulation of the liver than a lazy lounge of an hour or more. Lord Palmerston used to say that 'the outside of a horse is the best thing for the inside of a man.' All throughout the body we have most elaborate arrangements for removing waste products. In the muscles, for example, we find the fascia which surrounds them forming a regular pumping arrangement, the two layers of which it consists being separated from each other at each muscular relaxation, and pressed together at each contraction. The lymph, and the waste products which it contains, are thereby actually pumped out of the muscle at each contraction and sent onwards into the larger lymph channels, so that the muscular action itself removes the waste products. At the same time we find that the movements of the muscles of the leg, for example, will also pump out the blood from the veins, sending it upwards from the feet and pressing it upward to the body.

"Again we find that in the abdomen and thorax we have pumping arrangements whereby any excess of fluid is pumped out of the cavities by the action of respiration." (Dr. Lander Brunton, in *Practitioner*, vol. xxv., No. 5, p. 239.)

Dr. Geo. Budd, of Clifton, writing about blood-poisoning, says: "Fibrous tissues are the passages between the blood and the lymphatic system, and liquid containing effete matter is passing through those passages in excessive quantity; they therefore, containing as they do the entrances to the lymphatic system, are really eliminative centres."

Do not these passages relating to the excretion of waste products and the circulation of fluids show what a powerful factor of health is exercise, setting the muscular and fibrous tissues of the body in vigorous action, and thus doing for us the same as we do to a fire when we rake out the dust from the lower bars, and admit a fresh supply of air for free combustion?

And does not something of the same kind in the case of a tree happen from the energy of a cyclone—in eliminating waste products and sending a fresh circulation of new material into all parts?

Will Mrs. Syme carry her observations a little further as to the effects of tropical storms on new growth? and will those interested in forestry give us also the results of their observation on the comparison of the growth of trees while exposed to, and of those that are sheltered from high winds?

ALEXANDER WALLACE.

Trinity House, Colchester.

THE INDOOR GARDEN.

TREE OR PERPETUAL FLOWERING CARNATIONS.

TREE Carnations of the old-fashioned description, so long in cultivation, were only grown by a few people who cared more for the perfume of the flowers than a plant bore than they did for the look of the plant

without cutting down, a practice that I always used to follow in the spring, after which they will make stout bushy growth. Still even when so treated I always found young stock more satisfactory, especially when propagated early enough to give them the season before them in which to gain strength. The plants first put in warmth in the autumn will naturally be the first to make young growth, which will furnish cuttings that will root readily in a little warmth, after which they must be potted singly in good loam, to which add about one-sixth of leaf-mould, a little rotten manure, and some sand. It may be as well to remind those who have not had much to do with Carnations, that these perpetual flowering kinds are, like the show varieties, very much subject to the attacks of wireworm. Similar to the ordinary sorts, they like good fresh loam, but this requires to be carefully looked over before it is used, or many of the plants will be destroyed; this is the more necessary if the soil is much infested with these vermin.

Hard Potting.—I am a great advocate for hard potting, knowing the advantages which it gives in the case of most plants, yet not all, and these Carnations are amongst the number, for I never

found them do so well when the soil was compressed too closely in the pots; in fact, I have seen them come to a complete standstill when over hard potted, a condition out of which they did not move until turned out and potted lighter; nor do they do so well when put out in the open air too soon in spring, as if they are exposed before the frosty nights are over, although just as hardy as the florists' section of Carnations, and better in constitution than many of them, it seems to give them a check, which they do not like. These most acceptable continuous blooming flowers with a sufficient number of plants may be had as early in the autumn as wanted and all on through winter and spring. Not the least advantage they possess is the gradual succession of bloom they give, which, coupled with their enduring nature, permits of all the flowers being used. This, combined with ability to stand without flagging when mounted in bouquets, or for button-holes, at once places them second to no plants that can be cultivated where an uninterrupted supply of flowers is wanted. One essential is to see that the plants all through the season are kept quite free from aphides. It sometimes happens that hard-leaved subjects, such as these which do not suffer quickly, get disfigured by the attacks of insects, as things of a softer nature are let to become much infested be-

fore means are taken to rid them of the insects; but if allowed to suffer in this way, they are equally longer in recovering. The best means I have found for keeping them clear from both aphides, and red spider, which latter pest sometimes troubles them, is to syringe once or twice a week all through the summer with soot water made by adding soot at the rate of a handful to a gallon of water, stirring it well up so that none remains floating on the surface, and then letting it settle, pouring the water off gently and using it in a clear state. No insect likes to come where the soot water is thus regularly applied, and in addition it helps the plants in their



By the Lake (see p. 64).

itself. Grown as they used generally to be, their tall untidy appearance was such that they were anything but imposing objects, yet the unsightly form of the plants was not alone attributable to their natural habit, but was in part owing to the way in which they were managed. But not having a sufficiency of young stock, old plants had to be kept on doing duty too long, and usually without any attempt to reduce their height. Even the newer varieties which have appeared in recent years, such as the fine kinds raised by M. Alegatière, Mr. Turner, and others, although so great an improvement as regards habit, would still get unshapely if kept too long

growth. Further, they must never, especially in the hot summer weather be allowed to get dry, for though they will not die or lose their leaves through it like some plants of a more delicate nature would, yet over-dryness invariably causes them to get into a hard, stunted state. One of the principal reasons why these Carnations are frequently absent from private establishments is that many gardeners have not a suitable place to flower them in; in numbers of places there is little accommodation in the shape of pits or low houses with a gentle heat at command, such as Carnations and some other plants require, where there is no structure kept at an intermediate temperature between the stove and forcing pit and ordinary greenhouses. Some of the most valuable winter-blooming subjects can never be managed satisfactorily. There are now a large number of these continuous-flowering varieties of Carnations, but for ordinary use a limited selection of the most decided colours will generally be found better than an extension of the kinds, some of which will most likely be deficient in freedom of growth, or some other essential property.

Varieties.—The following are all good kinds :—

A. Alegatiere.—Bright red, a very free flowering sort of dwarf, compact habit, and a good grower.

Lucifer.—Intensely bright scarlet; in fact, it would be difficult to imagine anything more vivid in colour.

Miss Jolliffe.—Pale pink, an extremely free bloomer, a good grower, and dwarf.

Osman Pacha.—Very bright scarlet, flowers large, and good in shape.

Vestal.—A beautiful white, remarkably free.

Madame Elizabeth.—Rose colour, an equally fine kind.

Guelder Rose.—Pure white, fringed petals, a free bloomer.

Souvenir de la Malmaison.—Blush white, immensely large, full flowers.

T. BAINES.

DEUTZIAS AND WEIGELAS FOR FORCING.

PARADOXICAL as it may seem, it is nevertheless true that the most important part of the work connected with forcing must be done in the previous year in the character of preparatory work, unless, of course, the plants forced can be raised from seed and perfected in one season. The Vine, the Peach, and other plants that are forced for their fruits must have the embryo fruits stored up in the buds, or they cannot be brought forth. Forcing only advances a stage further what had a previous existence; it is also just the same with plants that are forced for their flowers alone, and the better the wood is developed, and the more perfect the maturation, the less difficulty will there be in inducing the flowers to come forth. Thus good preparation means not only more and better flowers, but less fuel will be required in their production. Buds that are well ripened feel the slightest pressure in the way of increased temperature when accompanied by a moist atmosphere. They are prepared, are, in fact, waiting to begin work, having been well grown and rested.

Propagation and Culture.—Deutzias and Weigelas are very easily propagated. Young shoots, just getting a little firm at the base, will strike under cloches or hand-lights in the open air in a shady border if the cuttings have been taken from plants growing outside. If they are obtained from forced plants they may be taken in a softer state, dibbled into pots of light sandy soil, made firm, and plunged in a propagating bed, and if kept close and moist they will soon root. Greater progress will be made with the young plants if, when they are hardened off, they are planted out in a well-prepared bed in the open air, 6 in. apart, to be mulched and watered occasionally during summer, when necessary. In the autumn, when the leaves fall, cut the young plants nearly down to the ground to strengthen the base and cause more shoots to spring therefrom in the following year. It is more important to have a number of moderate-sized shoots than to have one or two of extra strength. During the second summer attention to the mulching and watering will expedite growth, and in the case of plants that are in training for forcing it will be an advantage to keep their roots close at home, as they will lift with less check. Though Deutzias and Weigelas are not usually forced in small pots in a young state, yet well-flowered little plants in small pots are very useful for many purposes, as, for instance, in room or table decoration; therefore, some of the best of the two-year-olds may be potted early in autumn, and placed in a sunny position to complete the ripening, as the better this is done the sooner forcing may begin. Though, as I have said, at the end of the second year a few of the best plants may be lifted for flowering in a small state, yet the greater part will be cut back again and remain for another season, and, of course, their development will depend entirely upon the treatment they receive. If planted in poor soil and nothing else

done for them, they will not be very strong even at the end of the third or fourth years.

Forcing and After Treatment.—The first year's forcing should be gently done. Plants are pretty much like human beings: they can be led when they cannot be driven. If started gently in a pit where there is a little bottom-heat to encourage the root, with a night temperature not much exceeding 55°, a very great measure of success may be obtained even from plants lifted and potted the same autumn. I am speaking now of early forcing; in February and March there is usually no difficulty. When the flowers are gathered or have fallen, the flowering shoots should be pruned back and the plants placed in a light warm house or pit to make their growth. Every encouragement should be given to the young shoots that break up from the base, as these, when well ripened, will flower their entire length, furnishing long wreaths of flowers for cutting, or the plants producing them will make handsome specimens for moving into the conservatory. When the wood is made, and getting firm, the ripening of the plants may be best finished off in the open air; the pots should be plunged in some sunny position, and water given when required. Here they may remain till October, when they should be placed in some cool pit or house to wait for taking their turn in the forcing pit. The two genera I have named ought to be more largely grown than they are where winter and early spring flowers are in request, not in single plants, but in dozens, and after a stock has been worked up there will be no difficulty in securing plenty of flowers.

Varieties.—Of the Deutzias, *gracilis* is the best for early work, with the double-flowered species (*crenata*) to come on later. Of Weigelas, *rosea* is the best for pot culture and forcing. The flowers of this variety should open in a light house to obtain the beautiful rose tint which they should have if well managed.

E. HOBDAY.

ENCEPHALARTOS.

THESE plants belong to the family of Cycads, and for permanent conservatory or greenhouse decoration they are quite equal to anything in cultivation. Noble in appearance as the Tree Ferns are with their feathery spreading heads and tree-like trunks, these Encephalartos are quite their equals and in some respects preferable, especially for using in a moderate sized house, for Tree Ferns are comparatively quick growers, and unless the house they occupy is lofty they soon get too high; whereas the Encephalartos are very slow growers, unless kept continuously in a high temperature. Their handsome arched leaves are long enduring. There is a great difference in the size the different species attain, consequently by judgment in selection they may be had to suit houses of different sizes. A good sized specimen with a stout trunk is seen to the best advantage when occupying an elevated central position surrounded by lower-growing plants either flowering or fine-leaved; they are also suitable for standing in large vases, as they do not require pots nearly so big in proportion to their size as most plants that can be used in this way. Although several of the species will live in a greenhouse temperature, yet whilst their young leaves are being formed they are much better placed in intermediate warmth. If kept quite cool, I have known them for two years without making any growth at all. The leaves are formed in a number, all together, like *Cycas revoluta*, and care should be taken that they do not receive any check whilst the young growth is being formed, or it will not attain its full size. The leaves being of a hard leathery texture, the plants do not require so much water as they otherwise would, particularly during the winter season, yet the soil must not be allowed to remain too long dry, or the older leaves are liable to go off before their time. Strong loam is the most suitable soil, with a little sand added, and the drainage must always be such as to permit the water to pass freely away. They seldom require re-potting, but when anything in this way is to be done, the soil should be rammed hard in the pots.

The following kinds are all handsome :—

E. villosus.—A noble species of large growth, that forms a stout scaly trunk as large as *Cycas revoluta*; the fronds are erect, gracefully curved towards the extremity, and deeply pinnated. The appearance of the plant is not unlike that of a small example of *Cycas circinalis*. It comes from South Africa.

E. Vroomi.—This is one of the handiest of the now numerous fine-leaved plants; it is more compact in growth than *E. villosus*; its habit is unexceptionable, the leaves assuming a partially erect position, arching over a little below the extremities; the segments are oblong-lanceolate, toothed on the margin. A native of South Africa.

E. Ghellincki (*gracilis*).—A stout-stemmed species, of small growth; the leaves are about 3 ft. long, slender, and elegant. It is suitable for a small house. Introduced from South Africa.

E. plumosus.—This also comes from South Africa. It is a strong-growing kind, thick in the stem, and has large pinnate leaves. The pinnae are armed with stout marginal spines.

E. Verschaffelti (cycadifolius).—A stout-growing kind, erect in habit; the pinnae, 3 in. long, are linear-lanceolate in form. It is a handsome species from South Africa.

E. Hildebrandti.—A stout-growing plant in the way of *E. villosus*; the pinnate segments crowded thickly on the rachis. It comes from Zanzibar, and is suitable for a roomy house.

E. horridus.—A very strong grower, forming thick stout foliage; the leaf segments are armed with formidable spines. It is a very distinct looking plant, that does not occupy so much room as some of the species. From the Cape of Good Hope.

E. Frederici Guilielmi.—This is a very distinct-looking species, with close, compact, arched leaves; the leaflets very closely packed on the rachis. It is still a comparatively new kind, and so far as appearance goes does not seem to be a large grower. A native of South Africa. These *Encephalartos* are not yet near so generally known as they deserve to be, and when plant growers are better acquainted with them they will no doubt be much more extensively cultivated. The elegant Fern-like foliage of some of the species, and the distinct grotesque habit of the shorter-leaved kinds, alike make them deserving of a place where diversity of appearance is held in estimation. A. Z.

EVERGREEN WALLS IN GLASS HOUSES.

IN stoves or glass houses devoted to the culture of plants requiring much heat and moisture the back walls are frequently most unsightly from the impossibility of keeping the brickwork clean by means of any ordinary dressing owing to the continual dampness occasioned by frequent syringing; and when the roof is draped with climbing plants the back walls are in many cases too densely shaded for ordinary climbers to grow, much less flower satisfactorily. Under these conditions the best remedy is to convert what is too frequently an eyesore into a thing of beauty by making it at once into an evergreen wall, clothed from base to summit with plants that delight in shade and abundant moisture. I find the following method to produce excellent results: At the base of the portion of wall which it is intended to cover stout brackets must be driven into the wall for supporting strips of slate about 8 in. wide, on which to build the wall facing. Stout iron uprights, perforated at every 6 in. for the horizontal wires, are securely fastened to the wall; they may be either quite erect or drawn in a little towards the top so as to reduce the quantity and weight of soil, which in a wall of any great height is considerable. In some walls recently covered we began with 6 inches of soil at the base and reduced it to 4 in. at the top. The best soil to build with is turfy peat or turf that has been stacked up long enough to kill the Grass, but not to get rotten. Commencing at the base, we put on a layer of turf and peat and then pieces of *Lycopodium denticulatum*, *Isoplexis gracilis*, *Panicum variegatum*, small Ferns of various kinds, *Fittonia argyrea* and *F. Pearcei*, fine foliaged *Begonias*, and similar plants are inserted, and the roots covered with finely sifted sandy soil. Another layer of turf and plants is then put on, and followed up until the whole space is covered, the soil being compressed tightly inside the wires, which are screwed up from one end like an ordinary training trellis, either by means of screws and bolts, or raidisseurs similar to those employed so largely where the French or cordon system of training fruit trees is followed. Frequent syringing with water of the same temperature as that of the house is indispensable until the plants get well rooted, after which a good soaking from the top, enough to thoroughly saturate the whole mass of soil, will greatly assist to keep the plants in perfect health for some time, together with the daily syringings that ordinary stove plants receive. Although usually adopted for covering the walls of stove plant houses, this system may be equally satisfactorily carried out in quite a cold house or Fernery by merely varying the plants. The *Lycopod* for ground-work is such an accommodating plant that although it grows luxuriantly in stove heat, it seems to enjoy the cool temperature of an unheated Fernery quite as much, and is of a deeper green colour and more robust and healthy in appearance. Anyone who has experienced the difficulty of attempting to keep walls clean or presentable by the ordinary means of colouring and covering with creepers will, I feel sure, find their labour well repaid by converting what is too often an eyesore into a by no means insignificant part of the decorative portions of the structure. J. GROOM.

Linton.

Scutellaria Mocciniana.—This (a coloured plate of which was given in *THE GARDEN*, Vol. X., p. 606) is deserving of being largely grown for cut-flower purposes. Mr. Jacques, of Davenham

Bank, Malvern, tells me that he cannot succeed in growing plants of it into large specimens, but he grows a large quantity of it for cutting from, and also for decoration, in 6-in. and 8-in. pots. They will keep on blooming for some time to come, and he keeps others in a cooler house for succession. He finds them very useful, and intends growing them still more largely.—J. S. T.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Linum trigynum as a Shade-loving Plant.—I am pleased to see attention directed to this old-fashioned and somewhat neglected plant. Its most serious cultural fault is its liability to red spider. We used to grow it by the hundred for winter decoration in pots of all sizes, from 3 in. to 12 in. in diameter, and consequently had plants for all purposes—for filling small baskets, for vases, or for conservatory decoration. Our plan was to break up the plants in spring when they became too large, when quantities of rooted suckers would be found round the sides of the pots. These suckers potted singly were our smallest plants. These in turn were shifted on until they became too large. This *Linum* is, however, easily struck from cuttings in spring. We used to grow it without being troubled with spider, and, strange as it may seem, in a Vinery under the shade of the Vines. It is a shade-loving plant, and also a great gourmand. We used almost nothing else than rotten manure, leaf-mould, and sand as a compost. Though grown in a Vinery, yet the plants were near the light, the roof being flat, and there being a pit occupying the whole of the inside full of decayed tan, on which the *Linum* pots stood. This pit was, in fact, used at one time for the growth of Pines, but was afterwards made into a Vinery. In this position the *Linums* seemed to be at home. They were treated in a wholesale way as regards manure water while growing, and no particular account was taken of their rooting through into the old tan. By October or November they were green stubby plants, studded with their peculiar leafy flower-buds, and for decorating a rather dark and shaded old-fashioned conservatory they were admirable. Some old plants of this *Linum*, I can remember, were planted out on the floor of the great conservatory at Chatsworth in Mr. Stewart's time, and it will be allowed that they were sufficiently distant from the glass in such a position to justify them being classed among shade-loving plants. A hot dry atmosphere is death to them; they make an enormous amount of root for the size of the plant, and water runs off the foliage, like off a duck's back, without wetting it, facts all of which point to the need of moisture and shade.—HIBERNIAN.

Alocasia Culture.—When shall I start, and how grow an *Alocasia* now dry in a large pot?—S. N. [If a minimum temperature of say 65° can be maintained, with a corresponding rise during the day, now would be a good time to start an *Alocasia* into growth; if this temperature is not yet at command it would be better to wait a few weeks longer. If the soil in which it now is should be exhausted, the better plan would be to remove the bulbs from the same, carefully preserving the live roots; then divest the bulbs and roots of any decaying matter, and either syringe or dip them in warm water before repotting in fresh soil. This should consist of good fibrous peat, such as would be used for Orchids, with the addition, if obtainable, of a little light fibry loam; to this add a good proportion of Sphagnum Moss and lumps of charcoal, with plenty of silver sand. In potting, use the soil in as large pieces as possible; keep the bulbs and soil raised well above the rim of the pot, finishing off with a surfacing of either Sphagnum Moss or Cocoa fibre. The latter will soon encourage fresh rootlets. Crock the pot quite two-thirds up with clean, broken potsherds. Water freely when in good growth, and give manure water from the farmyard, if obtainable, once or twice a week during the growing season. Watch closely for red spider and thrips, and shade during bright sunshine through the spring and summer months. Thus treated success will be the result.—J. HUDSON.]

Rhododendron Duchess of Edinburgh and Others.—For some weeks back I have noticed that your correspondents speak favourably of these *Rhododendrons*. On visiting the nursery of Messrs. Downie & Laird, at Corstorphine, Nov. 11, I was astonished to find the following in full flower, viz., *Javanicum*, *Duchess of Edinburgh*, *Princess Royal*, and *Jasminiflorum*, the latter two not so well flowered as the others, but still very pretty. Such plants as these are extremely valuable, flowering, as they do, at a season when flowers are so scarce. On visiting those gardens again to-day (Dec. 28), I found a plant of *Duchess of Edinburgh* nearly in full flower. Mr. Downie informed me that he believed with proper treatment flowers might be had off this variety nine months in the year; too much, therefore, I think, cannot be said in favour of such plants.—A. ANNAN.

Small-flowered Chrysanthemum.—Amongst the small-flowered Pompone Chrysanthemums, one called Snowdrop is quite a gem. Its charming little blossoms are about 1 in. across, and of the purest and most sparkling white, extremely full, the florets reflexing over each other, and illustrating well the florist's half-globe in its outline. Another similar in character is called Lilac Gem, and is of a pale rosy-lilac, very full, with reflexed petals, forming a semi-globular flower-head, a trifle larger than Snowdrop. These very small-flowered sorts will not only make pretty small pot-plants for decorative purposes, but must also be very useful for bouquet work, especially for button-hole bouquets.—*Florist.*

Salvia Camertonii.—This *Salvia* must not be confounded with the as yet nameless Pine apple scented *Salvia*, from which it is quite distinct. Both species have been grown for several years at Sir George Macleay's by Mr. Charles Green, who has had ample proof that they are two distinct species. In inflorescence they most closely resemble each other; but there are well-marked points of difference. I will at present only mention one, the leaves of *Salvia Camertonii* have no scent whatever.—H. HARPER CREWE, *Drayton-Beauchamp Rectory, Tring.*

Tree Carnation Cuttings.—Allow me to point out the advisability of taking and starting these at once. These early-struck plants invariably produce the best results. The small side growths up the stems are the best for the purpose; they should be taken off at the second joint and without any further preparation dibbled into a box, rather close together, in sandy loam, leaf-mould, and a very little peat. They should be kept close, in a moist warm atmosphere, till they are rooted, when they may be potted off singly in small pots and grown on in the ordinary way. Taken now, one may safely count on bloom early in December.—GROFLE.

Sparmannia africana.—A friend gave me a rooted cutting of this a few months back, which has shown bloom ever since October last, but has not bloomed yet, and my friend's plant has. He tells me that it is very handsome. I potted mine in a 6-in. pot, in loam and leaf-mould, with a little silver sand. Is it a rare plant? I find that few gardeners hereabouts know it.—J. BALDING. [*Sparmannia africana* is by no means rare. As to its not flowering, you probably have not heat enough. It does best in a warm greenhouse or intermediate house.—J. M.]

Rockwork in Battersea Park.—Mr. Pulham writes to say that the outlying piece of rock to which we objected the other day in our account of this rockwork was placed where it is, not by his desire, but that of the late superintendent. (He adds that "what makes it worse is that so much of the other rock is smothered by vegetation that it cannot be seen, and I urge in vain that it should be somewhat thinned to show the rock; also that the water should flow over the falls more regularly than it does.

Prices of Hardy Plants.—I see this subject is mentioned in *THE GARDEN*. I am told hardy plants are expensive just now, in consequence of the demand for them, but they can be procured at a considerably less price than £7 10s. or even half of that per 100 by those who know how to set about their business. A tradesman with whom I have dealings offers me good selections of a number of kinds at from £1 to £1 5s. per 100. For £1 10s. he includes Phloxes, Pinks, and Aquilegias, and such like; and for £2 he offers to make a fine and good collection of 100 species and varieties, to include Narcissus, Potentillas, Delphiniums, Carnations, Picotees, Lilies, and Narcissus. Taken in increased quantities, a lower figure still is charged. One's own selection, including a large proportion of the more popular florists' flowers, comes to more money, yet to nothing like £7 10s. The half of that sum will buy 100 really fine plants.—WILD FLOWER.

Fire at Messrs. Osborn's.—In case reports may reach you concerning a fire which took place on my premises on Friday evening last, I write to give the truth of the matter. It broke out about eleven o'clock in our packing shed which contained a quantity of dry material, hay, straw, &c. The shed was partially destroyed and all that it contained. Fortunately, there were not many trees in it at the time. The fire was got under before reaching the office and seed shop adjoining, but in the meantime the mob which had collected got in and dragged out bags of seed and anything they could lay hands on. The consequence was a large quantity of seed was lost and other sundries connected with the seed business. The plants also in an adjoining greenhouse suffered to some extent, especially Azaleas, &c. Had the wind been blowing from a southerly direction the whole of the buildings must have been burnt; as it is it will not interfere with our general routine of business, but the execution of seed orders will necessarily be delayed about a week. The cause of the fire is unknown.—ROBERT A. OSBORN, *Fulham.*

The Garden Spider.—Last autumn, while watching some spiders spinning their beautiful geometrical webs, it occurred to me to try what effect a tuning-fork would have upon them. On sounding

an A fork and lightly touching with it any leaf or other support of the web or any portion of the web itself, I found that the spider if at the centre of the web, rapidly slews round so as to face the direction of the fork, feeling with its forefeet along which radial thread the vibration travels. Having become satisfied on this point, it next darts alongs that thread till it reaches either the fork itself or a junction of two or more threads, the right one of which it instantly determines as before. If the fork is not removed when the spider has arrived it seems to have the same charm as any fly, for the spider seizes it, embraces it, and runs about on the legs of the fork as often as it is made to sound, never seeming to learn by experience that other things may buzz besides its natural food. By means of a tuning-fork a spider may be made to eat what it would otherwise avoid. I took a fly that had been drowned in paraffin, and put it into a spider's web, and then attracted the spider by touching the fly with a fork. When the spider had come to the conclusion that it was not suitable food and was leaving it, I touched the fly again. This had the same effect as before, and as often as the spider began to leave the fly I again touched it, and by this means compelled the spider to eat a large portion of the fly. The few house-spiders that I have found do not seem to appreciate the tuning-fork, but retreat into their hiding-places as when frightened; yet the supposed fondness of spiders for music must surely have some connection with these observations, and when they come out to listen, is it not that they cannot tell which way to proceed?—C. V. BOYS, *Physical Laboratory, South Kensington, in Nature.*

THE GARDEN FLORA.

PLATE CCLXVII.—HYACINTHUS (GALTONIA) CANDICANS.

To the late Mr. Wilson Saunders our gardens are indebted for the introduction of this noble Liliaceous plant. It was about ten years ago that Mr. Cooper sent from South Africa the first living bulbs of that wonderfully rich collection at Hillfield, Reigate, and great was the surprise of every one who saw the giant Hyacinth when it flowered there for the first time. So dissimilar, indeed, is the plant to other kinds of Hyacinthus, both in point of growth and structural peculiarities, that for some time the propriety of its generic name has been questioned, and but a short time since M. Decaisne, of Paris, published a figure of it in a Continental contemporary, under the name of *Galtonia candicans*, a name which we consider is far more appropriate than *Hyacinthus*. Another and nearly allied species, introduced to Kew about the same date, was *H. princeps*, which, though perhaps not quite so ornamental as *H. candicans*, is a very fine plant, thoroughly deserving of culture. It may not be out of place to mention the few other kinds of Hyacinthus in cultivation. They are *H. amethystinus*, a charming little species with amethyst blue flowers somewhat in the way of the common wood Hyacinth (*Scilla nutans*). It is a native of the Pyrenees and other parts of Spain. *H. orientalis*, the original of the common garden Hyacinth, *H. provincialis*, a pretty slender growing kind from South Europe, and *H. romanus*, called also *Bellevallia romana*, likewise a desirable kind, but not very showy.

Culture and Position.—For the following remarks in reference to these we are indebted to our excellent correspondent Mr. G. F. Wilson, Heatherbank, Weybridge, than whom we know of no one better able to give advice, as the plants of this Hyacinth which we have seen in his garden are finer by far than we have elsewhere seen them both under pot culture and in the open border. "Many years ago Mr. Wilson Saunders gave me a bulb of this Hyacinth, which in course of time seeded, and has had many descendants. It is quite hardy, having stood the two last trying winters in a sheltered part of my cottage garden, but I think the flower is in its greatest perfection when grown as a pot plant in a cold house. In an orchard house it grows perfectly and seeds freely. It makes a beautiful cut flower in a tall vase. I believe botanists debated for a year whether it was to be a Hyacinth or a Snowdrop; the first gained the verdict, but this I am told is impugned by some high authorities. Everybody admires it; it has one defect in common with many other beautiful flowers, and that is, its blossoms do not come out all together. Its time of greatest beauty is when the lower flowers are out with the upper part in bud."

[Our plate was drawn by Mrs. Duffield from a specimen obtained in flower at Heatherbank last summer.]



THE CAPE HYACINTH (*HYACINTHUS CANDICANS*.)

EURYBIA RAMULOSA.

THE shrubby Asters of Australia and New Zealand may be said to correspond with the herbaceous Asters which abound in the northern hemisphere, particularly in North America. Among the numerous kinds that have been in cultivation there are a few which may be termed hardy shrubs in the southern counties of England and Ireland, and of these *E. ramulosa*, of which we here give an illustration, is one of the prettiest. Nothing, indeed, can well be more interesting than its long elegant sprays of starry, white blossoms, borne in rich profusion nearly throughout their length, and they are particularly suitable for cutting, as they last a long time in good condition when cut. For the specimen here represented we are indebted to Mr. Gumbleton, of Belgrove, Queenstown, from whom



Shrubby Starwort (*Eurybia ramulosa*).

we have before received some beautiful sprays of other shrubby Asters, such as *E. Gunni* and *Olearia Haasti*, all of which flourish in his garden. As a rule, it is best to plant this, and shrubs of similar hardiness, against a sheltered wall, as by that means they are more secure from frost, which cuts down so many established half-hardy shrubs. W. G.

Food Reform.—Speaking recently, Professor Mayor, of Cambridge, said he regarded as an important feature of the vegetarian movement its tendency to break down caste distinctions. The luxury which had become fashionable was equally burdensome to host and guest, and, indeed, at a great dinner the only persons not to be pitied were the servants, for they had something to do, and were not laying up for themselves a store of disease and pain. In this respect the rich were greatly in need of an emancipation act. When he was in Rome the great scholar Amari had hesitated to invite some English guests, for he had made a rule never to dine ex-

cept in the company of his children, and he was afraid that their simple fare would not suit the taste of his insular friends.

GARDENING FOR THE WEEK.

Ferns.—Advantage should be taken of the present quiet time for giving the occupants of this structure a general look over, and as many of them are now in a thoroughly matured state, they are in the best possible condition for dipping in some kind of insecticide or fumigating to free them from the remains of thrips and scale. Woodwardias and Tree Ferns are very subject to black thrips, and the fronds, being far away from the eye, often get permanently disfigured before the enemy is detected. These should be closely watched and fumigated two or three times, at intervals of a few days, before the young growths start from the crowns. In mixed Ferneries a lower temperature than is frequently given to many of our most useful varieties will often render them insect proof, or nearly so, while the fronds when used in a cut state will last much longer than when forced and attenuated in a strong heat. Where the more tender varieties of the hardy Ferns have the place they richly deserve in the cool house, many of them will soon start into growth, but water must be sparingly given for the present, care being taken that the balls do not become too dry, as, owing to the decomposition of the compost, the water is liable to find its way into crevices instead of passing through them. To prevent this, ram round the extremities of the pockets, and top-dress with new peat and loam.

Hardy Plants for Cutting.—Those who would keep pace with the rapidly increasing taste for herbaceous plants for the decoration of rooms and corridors in the "season" will do well to turn their immediate attention to the culture, not in single plants, but in large groups of such things as *Spiraea Aruncus*, *S. venusta*, and *S. palmata*, Larkspurs, double and single Pyrethrums, the graceful *Asphodelus ramosus*, white Lilies, and Pæonies. Of English, Spanish, and Japanese Irises, which rival the Cattleyas, early Gladioli, blue and white Scillas, and an abundance of Solomon's Seal for graceful foliage, their culture is extremely simple, the secret being deep trenching, good soil, ample space, and plenty of water in summer. Where stock is limited, old stools taken up now and divided, or placed on a gentle hotbed for giving early cuttings, will enable the cultivator to produce strong plants for turning out in the spring, and when well done they will increase in strength and beauty for several years without further trouble. Mixed collections should now be looked over and top-dressed with a good layer of old Mushroom manure, leaf mould, or charred refuse, forking being deferred until the spring. Fraxinellas, Larkspurs, and others for which slugs have a liking, may be well dusted with soot or lime, and surrounded with narrow strips of perforated zinc. Replace old labels and devote wet days to the preparation of sticks for summer use.

Forcing Pit.—This structure will now be well filled with Lily of the Valley, Solomon's Seal, a most graceful and easily managed plant, *Spiræas*, *Deutzias*, Lilacs, Roses, Ghent and Japanese Azaleas, bulbs of sorts, and Rhododendrons. Of the latter the different varieties of *ataclerense*, *caucasicum*, and *Nobleanum*, potted in the autumn and kept under a glass through the winter, require very little forcing, and it is difficult to imagine anything more telling than these beautiful hybrids. In addition to these a regular relay of Ghent Azaleas should be worked through this structure, and although they do not produce such fine flowers as *mollis*, their scent and delicate colours render them equally valuable for cutting or decorative purposes. One of the most telling and easily forced plants which should not be overlooked is *Viburnum plicatum*, and being perfectly hardy strong plants potted now and plunged in the open air will be in fine order for forcing next year. Where great variety is an object *Dielytras* may be lifted and forced, and such annuals as *Browallias* and *Schizanthus* may be grown; but unless they are kept near the glass and well done they look weedy, and take up space which may be better occupied.

Pines.—Having drawn a few of the most promising Queens and Smooth Cayennes for early fruiting, the bed from which they have been removed may be turned, with the addition of a few fresh leaves, and replunged with the remainder of the plants for giving a succession. If carefully supplied with water at a temperature of 85°, some of these will follow closely on the heels of the first batch, while others will make a growth before they show fruit. See that the bottom-heat does not exceed 90° to 96°, dew the plants lightly overhead on fine days, and keep the atmosphere moist by damping the bed and all available surfaces after closing for the day. If it is thought desirable to push on a few of the strongest successions, see that the balls are properly moistened, and have clean pots, crocks, and soil dry and warm ready for shifting them by the time the bed is ready. Young stock may be kept quiet for the present at a

temperature ranging from 58° by night to 68° by day. Keep plants now swelling off fruit near the glass, and moderately supplied with stimulants. If possible, give a little air every day, otherwise the closely confined heat and moisture, combined with want of light, will result in their running too much to crown. Discontinue watering when the Pines show signs of changing colour, and if convenience admits remove the plants to a dry, warm position, where they will ripen well, and keep for a long time after they are fit for use.

Peaches.—Trees in the early house will now be in flower and fit for artificial impregnation. Pass the camel's-hair pencil over them each day when the heat has reached the maximum, and secure a steady circulation of air by opening the ventilators near the pipes, which may be kept sufficiently warm to secure a temperature of 60° with the rise of 10° more from sun heat. At such times counteract the too rapid escape of moisture by turning the fermenting material, and damp all available spaces with water a few degrees warmer than the house. Allow the night temperature to descend to about 50° in mild weather; but on no account risk failure by maintaining that figure when very severe. Cover outside borders with a good layer of dry Oak leaves to prevent the roots of trees in succession houses from receiving a check through the early stages. Syringe regularly, and force by day, when external conditions are favourable, in preference to exciting the trees by night. Get all pruning and cleansing finished without delay, as many advantages attend the performance of this work before the buds begin to swell, not the least of these being the fact that a stronger solution of Gishurst may be applied to the young wood before the sap begins to move.

Figs.—When fairly on the move, Figs make rapid progress, and the tender foliage presenting as it does a large surface to the influence of heat and light, pot trees will now require very careful attention to watering, as one mistake in this direction may prove fatal to the most promising fruit. Syringe regularly twice a day, but avoid having the leaves wet at nightfall. Keep the bottom-heat steady and allow the temperatures given in the last calendar to form the minimum with a slight increase on mild nights and bright days. Let disbudding and stopping be performed piecemeal little and often, and thin off some of the least promising fruit where thickly set. Knowing that the Fig frequently casts its fruit, many people facilitate this annoying process by overcropping to form a broad margin and lose all, when timely thinning and copious feeding would very often lead to the ripening of a full crop of fine fruit. Shake out and repot young trees intended for next year's forcing, and give them a little bottom-heat in the succession house or near the glass in a light pit where they can be regularly syringed to help forward an early growth. Put in eyes and cuttings of favourite kinds. Trim the under ground buds off the latter and plunge in heat.

Cucumbers.—Days having increased in length, plants that have been in bearing all the winter will well repay a general dressing over to get rid of some of the old wood and foliage in order to make room for the young shoots now growing freely. Where woodlice are troublesome, we remove the old fermenting material quite up to the pots or hills, scald the sides and bottoms of the pits, and replace with new Oak leaves at a temperature of 80°. The hills are then top-dressed with new loam. Spider is kept in check by sponging with soapy water, and Tobacco smoke is the remedy for fly. In a very short time the plants break in to clean vigorous growth, and continue in bearing until the spring-sown successions are ready to take their place. By the time the first set of young plants have formed the first rough leaf the soil should be warmed ready for giving them a shift into 4-in. pots. Replunge in heat near the glass, do not pinch the points, but train to twigs and prepare the fruiting pots or hills for their reception. Use good turfy loam from an old pasture, charcoal, or lime rubble, but no manure, as it encourages worms. Make up hotbeds for frames, and keep a good supply of materials always ready for renovating or making up new linings. Make another sowing of seeds, as it is better to have plants to spare than to feel the want of them.

Hardy Fruits.—New plantations of Raspberries may now be made on cool, but well-drained and deeply-trenched ground, for much as its surface roots delight in cool shade in summer, a cold, undrained border is decidedly objectionable in winter. Where the garden lies high and dry the canes may be planted in blocks or squares, but in low, cold places single rows answer best. When single rows get established, tightly-strained wires 3 ft. from the ground and 2 ft. on each side from the centre make an excellent trellis for tying the canes to, making a double row of fruiting wood from a single row of stools, and at the same time allowing the young growths to rise up from the centre without crowding or interfering with the gathering of the fruit. Fresh plantations of Gooseberries and Currants may also be made when the ground is in a fit state for working. Where space is limited and birds are troublesome the red kinds are very

prolific and ornamental when trained to leaders and closely pruned as pyramids. Put in cuttings, choosing well-ripened growths 1 ft. in length. Remove the eyes from two-thirds of the lower part and insert firmly to that depth in rows 12 in. apart. A very important, but too often neglected, operation in this department is the cleansing of fruit trees immediately after they are pruned. For general purposes there is nothing better than Gishurst Compound, 8 oz. to the gallon of water, applied with a painter's brush when the weather is dry. When American blight is troublesome a teacupful of paraffin may be added. Thin out Orchard trees, remove Moss, and wash the stems with a mixture of soot and quicklime. Fill up all vacancies in the nursery and on reserve walls with approved kinds that do well in the locality, and plant maidens for training as cordons where space admits.—W. COLEMAN.

MESSRS. PERKINS' NURSERY, NORTHAMPTON.

THIS nursery, the leading one in Northampton, is always worth a visit, containing, as it does, large and really well-grown stocks of forest trees, Conifers, evergreen shrubs, fruit trees, and Roses. The principal portion of the grounds is situated a short distance from Northampton on the Kingsthorpe and Brampton roads, and occupies a large acreage of very excellent red loamy soil of a fertile character admirably adapted for nursery purposes, trees of all kinds grown on it being of moderate strength and well ripened.

Forest Trees have for many years received much attention, and with evidently satisfactory results. The stock of Oak, Elm, and Birch is one of great extent and excellence, nearly every variety in existence worth culture being grown here. Amongst other forest and park trees attention may be directed to very fine groups of the Spanish and Horse Chestnut, and also to the scarlet-flowering kind, all remarkably healthy and vigorous. Limes, too, are very extensively grown, the red-twigged and weeping kinds being conspicuous, and Planes and Poplars also form important groups, the varieties *Populus canadensis aurea* and *P. c. nova* being particularly handsome and desirable. Amongst Thorns, Paul's new double scarlet seems most in demand. Amongst Willows the Kilmarnock is one of the most beautiful of all weeping trees. Here may be seen immense quantities of the Blackthorn or Sloe, the stock of which is said to be the largest in the country. Quicks too are literally grown by the million. Amongst other plants suitable for forming good hedges and garden screens may be named the common, broad, and oval-leaved Privets, which are very largely cultivated for these purposes, and another plant highly spoken of for fence-making is the *Prunus myrobalana*, evidently a fine subject for such a purpose. Gorse is another specialty extensively grown for covert planting.

Conifers.—Of these there is an extensive and well-varied collection, an important item of which are the English and Irish Yews, for the growth of which the soil seems particularly well adapted, and more especially for the Irish kinds, which comprise some of the most beautiful little specimens we have ever seen. There are, too, some strikingly fine plants of the golden variety of Irish Yew (*Taxus hibernica fastigiata variegata*), a really handsome and desirable kind. The universally popular *Retinosporas* receive a large share of attention. Amongst the most popular kinds here, judging from the number grown, appear to be *R. leptoclada*, a dwarf pyramidal kind, with a beautiful silvery grey hue, in every way a most desirable plant; *R. pisifera*, an elegant glaucous-looking sort, with foliage having a beautiful feathery appearance; *R. plumosa* and *R. p. aurea*, both truly beautiful varieties worthy of a place in all collections. Associated with these were also *R. squarrosa*, a very dwarf kind well suited for rockwork, and *R. tetragona*, another desirable dark green miniature growing species, very desirable for pot culture. Amongst Cedars was a particularly large and good stock of the well-known Cedar of Lebanon; the Deodar, too, is largely grown, and appears to winter well in this locality. Amongst Cypressess was every conceivable variety of *Lawsoniana*, the colour of *C. l. lutea* being particularly bright and good. Thujas are also about equally numerous, the most noticeable being the well-known *T. aurea*, which thrives excellently well in this district. Others consisted of *T. veraneana*, *T. gigantea*, and *T. semper aurea*, the last a fine golden coloured kind. Amongst the commoner *Arbor-vitæ* the Siberian deservedly holds a high place on account of its great hardiness. Of *Abies* (notably *Douglasii*), *Junipers*, *Piceas*, and *Thujopsis* I noticed good collections; and *Araucarias* and *Wellingtonias* are also extensively grown, but there does not seem to be so much demand for these two Conifers as for others of a more generally hardy and useful character. *Cryptomeria elegans* finds favour with some on account of its fine colour in autumn and winter, lighting up the landscape as it does during the dull months. Ordinary evergreens are, as a matter of course, numerous. Amongst Laurels, *L. latifolia* is a beautiful large-leaved kind, and *L. rotundifolia* is also a desirable

and handsome round-leaved variety. The Colchic, and Caucasian, and Portugal varieties also deserve notice, some excellent specimens of the narrow-leaved variety of the last named Laurel being conspicuous. Hollies are represented by thousands, and among them I observed some of the excellent *Ilex Watereriana*. Aucubas and Sweet Bays receive, as they well deserve to do, great attention. *Berberis Aquifolium*, *B. Darwini*, and other useful sorts form quite a speciality. Amongst Box trees the broad-leaved Handsworth and *B. rotundifolia* were conspicuous; the golden and silver varieties are also good, having clear and well developed markings, the soil evidently suiting them to perfection; and to such excellent shrubs as *Andromeda floribunda*, *Laurustinus*, *Kalmias*, and *Rhododendrons* a large amount of space is devoted.

Hardy Climbing Plants are grown largely and in great variety. Clematises of the Jackmani and lanuginosa types are in great request, and receive a large share of attention. Such popular climbers as Virginian Creepers, Honeysuckles, and Ivies of almost every kind are of course abundant, and amongst others were *Cotoneaster microphylla*, *rotundifolia*, and *Simonsi* in profusion, and than these, where the locality and soil suit them, few plants are more beautiful, the dark foliage and brilliant-coloured berries forming cheerful objects at all seasons, but especially in winter. The vicinity of the town of Northampton seems remarkably well adapted to the *Cotoneaster*, very fine specimens of it being plentiful in the large and beautifully planted cemetery on the Billing Road. The *Ceanothus*, Parsley-leaved Bramble, and the Periwinkle are evidently, judging from the quantities grown, amongst the most popular of climbing or trailing plants. Hardy Passion flowers, Jasmines of several kinds, *Pyrus japonica*, and *Wistarias* are also evidently profitable plants to grow, and Roses of all sorts, notably the climbing kinds, may be seen here in excellent condition.

Fruit Trees form an important feature in this establishment, the different quarters containing stock of the very best kinds, and all are cultivated in really first-class style. Preference is given in almost all cases to well-tried varieties, as being the most likely to give satisfaction. Of standard Victoria Plum trees, in every way exceptionally good, I noticed large quantities.

Plants, both out-of-doors and under glass, are likewise largely grown in this establishment, the latter having more the aspect of London market plants than any which I have hitherto seen in provincial nurseries.

H. BAILEY.

The Starling: its Habits and Food.—The starling devotes himself almost exclusively, in the matter of feeding, to the destruction of injurious pests. Much of his time is spent in hunting up and down for Tipulæ in the season, and for insects which infest fruit trees. He neither destroys seeds nor grain; and, when compelled by hunger to swallow fruit rather than his natural food, he contents himself generally with such wild produce as Haws and other hedge berries. The gizzard of a starling in August was found to have been stuffed with small brown beetles and a little grass, which it had probably picked up with them. A number of others were examined with the same results. During a very dry summer an old labourer remarked of a number of starlings in a field of Vetches, "Them starns are playing the havock with them tare tares." Several of the supposed depredators were shot, and in their crops were found a quantity of insects, several earwigs, some bronze-winged beetles, and a large quantity of a green aphid. On examining the growing tares the stems were found to be covered with this same green aphid, which, with the earwigs and beetles, had constituted the entire food of the birds and the attraction which drew them to the tare field. The starling's bill of fare has been given by a naturalist as consisting of worms, grubs, cockchafers, slugs, snails, flies, insects, beetles, glow-worms, fresh-water shell fish, Hips and Haws, Ivy berries, and occasional fruits. Few birds frequenting the farm and garden do less damage and are so constantly engaged in the destruction of all kinds of pests, clearing the soil of injurious grubs, and the backs of sheep and cattle of noxious insects. Waterton believed that starlings dispersed in spring, when the great flocks are dissolved, entirely from the difficulty of finding convenient nesting places, and that if due protection were afforded them in the shape of well-protected nesting places, they would remain gregarious during the time of nesting, like rooks or herons. Starlings already bred with him in large numbers in old trees and other places, and for the sake of additional accommodation he formed twenty-four holes in the wall of an old ruin. In the spring twenty-four pairs of starlings took possession of the holes and built their nests in them, and such was the extent of their chattering that the owls next door, in the old tower, spent many sleepless days on their account. The starling was a special favourite of the venerable naturalist. "I admire it," he said, "for its fine shape and lovely plumage; I protect it for its wild and varied song; and I defend it for its innocence." The eulogium was well merited.—*E., Field.*

TREES, SHRUBS, AND WOODLANDS.

THE SILVER TREE, OR WILD OLIVE.

(*ELÆAGNUS*.)

THIS, when associated with plants of a sombre hue, has a very striking effect, owing to the dazzling silvery whiteness of the undersides of the leaves. As flowering plants some of the species also well deserve cultivation, notably *E. glabra*, whose deliciously fragrant flowers are freely produced during the dull autumn months. *E. longipes*, too, makes a charming object early in autumn when covered with its small Cherry-like, orange-coloured berries. Let us first take the

Evergreen Species.—Foremost amongst these must be named *E. glabra*, which is also known under the names of *reflexa* and *conferta*. This is really a handsome Japanese shrub, the foliage of which is dark green above and silvery white beneath. It is also covered on both the upper and under surfaces with reddish-brown scales, which likewise extend to the young wood, but drop from the upper part of the leaf as it gets old. Its flowers, which are fragrant, are tube-shaped, greenish-white within, and covered on the outside with the scales just mentioned. There are also two or three variegated varieties of this, which form a pleasing contrast with the green kind, and all are equally hardy, the foliage not being injured in the least during these last two winters. *E. japonica*, a beautiful



Elæagnus angustifolia.

shrub, has a more open and slender growth than the last, which it somewhat resembles; its leaves are, however, more pointed, much thinner, and more sparingly covered with scales. *E. latifolia* has, as its name implies, ample foliage which, when in perfection, almost equals that of the Laurel in size. The scales with which it is studded are of a lighter colour than in the preceding, and this, combined with the white reverse sides, gives the plant a very silvery appearance. Though a very striking kind, it is at the same time one of the most tender, the young shoots sometimes becoming frost-bitten.

The Deciduous Species in some cases attain the dimensions of small trees. *E. argentea* grows from 20 ft. to 25 ft. in height, has leaves 3 in. long and 1½ in. broad, and is one of the most silvery of the large-growing kinds. It is a native of North America. *E. hortensis* also attains a good size, but it has smaller foliage than the last named, and the flowers, which are more freely produced, are succeeded by berries almost as large as Dates; indeed, throughout Asia Minor they are much eaten as dessert. Of this there are two or three varieties, the most distinct being *E. hortensis angustifolia*, the foliage of which is much narrower than that of the type. This, as is well shown in the annexed illustration, is a very free-flowering shrub. *E. longipes*, a native of Japan, forms a spreading bush, the leaves of which are about 2 in. in length and 1 in. in width, bright green above and silvery beneath. It flowers during May, and when covered with berries has a striking appearance. The berries are, however, much sought after by birds, which soon rob the plant of its beauty. There is a distinct variety of this called *E. longipes crispa*, in which the leaf is somewhat rounder than that of the species, and very much crimped.

ALPHA.

TREE RECORD.

Notable Trees at Hopetoun Park.—There are on this property some good specimens of *Quercus sessiliflora*. This and *Q. pedunculata* are, I consider, the only two Oaks worth growing for the market in this country. *Quercus Cerris*, or Turkey Oak, is much given to rot, and is so difficult to work that wood merchants will scarcely buy it. The plants, besides, are more costly at first than the other kinds. We have here several good specimens of the Evergreen Oak, some of which measure from 7 ft. to 8 ft. in girth, and are from 25 ft. to 30 ft. in height, with beautiful spreading tops, forming a lovely feature in a landscape, especially during the winter season. The Service tree, with its white-backed leaves, is also a pretty species. Some of these here measure in girth from 6 ft. to 7 ft., and are from 28 ft. to 30 ft. in height. Near one of the old baronial residences on this estate are growing two Yews, which are said to have been planted at the head of two worthies who fell during Covenanting days, some 400 years ago. One of these measures 13 ft. 4 in. in girth, and the other 10 ft. 6 in. The variegated-leaved Plane or Sycamore also looks well amongst other trees. Some of this variety measure from 7 ft. to 8 ft. in girth, and are 50 ft. in height. We cut for our wood sale the other day a black Italian Poplar measuring 9 ft. in girth, having 37 ft. of bole, and containing 110 cubic ft. of timber.—J. McLAREN.

BIG TREES IN WABASH VALLEY, INDIANA.

LATIN NAME.	COMMON NAME.	3 FT. FROM GROUND.	TO 1ST BRANCH.	TOTAL HEIGHT.
<i>Acer saccharinum</i>	Sugar Maple	12 ft. 6 in.	60 ft.	118 ft.
<i>rubrum</i>	Red Maple	13 ft.	60 "	108 "
<i>Carya alba</i>	White Hickory	15 ft.	60 "	108 "
<i>oliveformis</i>	Pecan	16 ft.	90 "	175 "
<i>tomentosa</i>	Black Hickory	10 ft. 4 in.	55 "	112 "
<i>Catalpa bignonioides</i>	Jatalpa	6 ft.	48 "	101 "
<i>Diospyros virginiana</i>	Persimmon	5 ft. 6 in.	80 "	115 "
<i>Fagus ferruginea</i>	Beech	11 ft.	10 "	132 "
<i>Fraxinus americana</i>	White Ash	17 ft. 6 in.	91 "	144 "
<i>Gleditsia triacanthos</i>	Honey Locust	18 ft.	61 "	129 "
<i>Juglans nigra</i>	Black Walnut	22 ft.	74 "	155 "
<i>Liquidambar styraciflua</i>	Sweet Gum	17 ft.	80 "	164 "
<i>Liriodendron tulipifera</i>	Tulip Tree	25 ft.	91 "	190 "
<i>Morus rubra</i>	Red Mulberry	10 ft. 6 in.	20 "	62 "
<i>Platanus occidentalis</i>	Sycamore	33 ft. 4 in.	68 "	176 "
<i>Populus monilifera</i>	Buttonwood	22 ft.	75 "	170 "
<i>Quercus alba</i>	White Oak	18 ft.	60 "	150 "
<i>coccinea</i>	Scarlet Oak	20 ft. 3 in.	94 "	181 "
<i>var. tinctoria</i>	Black Oak	20 ft.	75 "	160 "
<i>macrocarpa</i>	Burr Oak	22 ft.	72 "	165 "
<i>palustris</i>	Water Oak	12 ft.	25 "	120 "
<i>Sassafras officinale</i>	Sassafras	7 ft. 9 in.	75 "	95 "
<i>Tilia americana</i>	Basswood	17 ft. 6 in.	50 "	109 "
<i>Taxodium distichum</i>	Bald Cypress	18 ft. 9 in.	74 "	146 "
<i>Vitis labrusca</i>	Grape Vine	32 in.		150 "
<i>Tecoma radicans</i>	Trumpet Vine	38½ in.		
<i>Bignonia capreolata</i>	Cross Vine			75 "
<i>Sicyos angulatus</i>	Sngl. Sd. Wild Cucumber			63 "

From other parts of the State the following trees are recorded as being worthy of mention :—

BOTANICAL NAME.	COMMON NAME.	LOCALITY.	3 FT. FROM GROUND.	TO 1ST BRANCH.	TOTAL HEIGHT.
<i>Quercus alba</i>	White Oak	Huntingdon Co.	20 ft. 3 in.		
<i>Liriodend. tulipifera</i>	So-called Poplar	Jackson Co.	18 ft.	65 ft.	120 ft.
<i>Ulmus fulva</i>	Red Elm		14 ft.		
<i>Ca. tanca vesca</i>	Chestnut		20 ft. 6 in.		
<i>Platanus occidentalis</i>	Sycamore	Jefferson Co.	40 ft. 6 in.		
<i>Sassafras officinale</i>	Sassafras	Jennings Co.	12 ft.		
<i>Quercus alba</i>	White Oak	Parke Co.	16 ft. 10 in.		
"	White Oak	Parke Co.	18 ft.		

CASE'S Botanical Index.

Another Fine Tulip Tree.—The following are the particulars of a Tulip tree growing on the lawn at Hampton Court, Herefordshire: Circumference 1 ft. from ground, 16 ft. 8 in.; 5 ft. from ground, 12 ft. 7 in.; height to spread of branches, 13 ft.; spread of branches, 66 ft.; total height, 80 ft.; cubic contents, 223 ft. The tree is in excellent condition, flowers annually, and is altogether a good specimen of the Tulip tree.—T. Hogg.

Fine Oriental Plane at Weston Park.—Circumference of stem at 1 ft. from the ground, 25 ft. 6 in.; at 3 ft. from the ground, 19 ft.; at 5 ft. from the ground, 18 ft. 6 in. The stem is 11 ft. high, and then branches out into 12 large limbs, which measure from 4 ft. 6 in. to 7 ft. in circumference, forming a massive top, 100 ft. being the average diameter of the spread of branches, and 80 ft. its full height.—J. CRAIG.

Large Trees at Yester, East Lothian.—The following measurements were carefully taken by Mr. Shearer, lately gardener at Yester for nearly forty years, the point of circumference in all the specimens being 3 ft. from the ground. The increase in girth of each tree in the twenty-six years, from 1854 to 1880, is given in the last column, the variations in growth being somewhat remarkable in trees growing under almost similar conditions.

	Circum. in 1854.	Circum. in 1863.	Circum. in 1880.	Increase in 26 years.
Oak, in the grounds at the garden	11 2	11 9	12 6	16
Oak, on the left side of the walk from Yester House to garden..	13 10	14 0	14 10	12
Beech in the grounds at the garden ..	13 6	14 2	15 6	24
Larch near Yester House ..	12 6	12 9	13 1	7
Spanish Chestnut ..	9 9	11 8	12 4	31
..	9 6	10 3	11 4	22
..	16 0	16 8	18 2	26
..	12 6	13 3	14 9	27
Scotch Fir, near the bridge ..	9 6	9 9	10 7	13
Sycamore, near the dairy ..	14 5	14 7	16 0	19

—D. D., in *Journal of Forestry*.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Spiræa Thunbergi.—Of all the small shrubs I have grown, I know of none more beautiful in winter than this *Spiræa*. Its real beauty is not fully developed, however, till the plant is at least three years old. The spray is small and delicate, and prettily recurved. The leaves are about 1 in. long, and very narrow and Willow-like. The plant is quite dwarf, and rather solidly furnished, except it be thinned out. It is not a plant for the barbarous practice of heading in. Up to the present time (Nov. 27), with the ground frozen as hard as a rock, and covered with 4 in. of snow, the plant does not seem to have lost a single leaf. It is a mass of rich purple and green, reminding me of some of the Japan Maples. To my mind, it is now a much more beautiful object than when covered with its tiny white flowers very early in the spring. It would seem to be almost evergreen.—*Moore's Rural*.

Jasminum nudiflorum.—I never remember to have seen this Jasmine so full of flower in mid-winter as it is this year. The fine growing weather which we last summer experienced in combination with the unusual mildness of the early winter will account for the lavish display of bloom which this old hardy climber is now affording. In this district old-established specimens of it are one mass of bloom, the clear bright yellow of which is thrown out into bold relief when associated with such evergreen climbers as the Ivy. It is a pity that the list of hardy plants which possess the power of flowering freely and brightly during the winter months should be so limited. One of these days we may see our gardens as rich as they are now poor in this respect, but until that wished-for time arrives we must employ what we have; and there can surely be no more worthy inmate of a garden than this naked-flowered Jasmine.—J. C., *Blythe*.

Desfontainea spinosa.—This beautiful shrub, a native of Valdivia, is perfectly hardy with us in Cornwall, and even in colder climates it grows and blooms freely. Its foliage, which is prickly, is deep green in colour and very ornamental, and the flowers, which are drooping and tubular, are red outside, yellow within, and borne in profusion. It is rather bushy in its growth; indeed, it would be difficult to imagine a more charming shrub, either in or out of flower.—R. H.

Tree Notes from Vienna.—Most of the Ailantus and Plane trees of the avenues in the Ringstrassen at Vienna are being removed on account of their dying off during last summer. Various opinions have been given with regard to their loss; a committee of enquiry composed of practical authorities assigned the cause chiefly to the bad state of the roots and the cold of last winter. Their unhealthy state may be chiefly ascribed to their not having the soil accessible to atmospheric influence and want of sufficient drainage. The waterlogging is mainly due to the excessive use of frequent heavy syringing in order to keep the avenues cool during summer. In attaining this object the trees are often deluged by quantities of water, which, owing to the heavy retentive character of the soil and insufficient drainage, cannot escape sufficiently fast. The trees have therefore got gradually into a bad state of health and the easier fell victims to the effects of last winter with its frosts, suddenly succeeded by thaws. As a singular instance I may mention that in this village several years ago twenty-six large Ailantus were planted on a very exposed place in a rather sandy and dry soil. Very little care, except a few waterings the first summer, was bestowed upon them; since that they have been thriving very satisfactorily, and last winter

only one of them succumbed to the effects of the frosts. In the gardens here, and also in the public gardens at Vienna itself, the Plane and Ailantus have tolerably well withstood the excessive cold. It is mostly the sickly trees in the avenues which perished in such great numbers. These observations were made during last summer.—LOUIS KROPATSCH, *Laxenburg*.

CUNONIA CAPENSIS.

THIS elegant evergreen greenhouse shrub bears small white flowers in compact racemes. It was introduced in 1816, and was afterwards figured in the magazines of the day, but though now in cultivation, we are not aware of the existence of any fully developed specimens. It is, however, worth careful culture, and with fair attention appears to do well. At the Cape of Good Hope it forms a small tree, where



Cunonia capensis.

it is known to the Dutch colonists by the name of Rood Elze. The soil in which it succeeds best is a mixture of peat and loam in about equal parts, with sand in proportion to the stiffness of the latter. Over-potting should be guarded against. It is allied to the genera *Ceratopetalum* and *Acrophyllum*, and indeed its floral racemes bear some resemblance to those of the well-known *Acrophyllum venosum*.

R. I. L.

Evils of Earthing up Tree Trunks.—I would caution any one from top-dressing hard-wooded trees in such a way as to cover their stems, for, although trees that emit roots from the old wood may not be injured thereby, there are a great many, both deciduous and evergreen, that should not be so buried. Top-dressing, to be of any service to the active roots of established trees, does not require to be placed close to the stem, as there are generally but few active roots there, especially in the case of dense-leaved evergreens, like most of the *Coniferae*, the soil being dust-dry close to the stems even in winter. On the contrary, the majority of active rootlets will be found quite as far from the bole of the tree as the tips of the branches. This, therefore, will be the best place to apply assistance

in the shape of top-dressing, and from examination of the soil under *Coniferous* trees, I feel sure that their greatest want is moisture; for, even when we are reading of floods occurring in all directions, the soil under the dense top-growth of these trees will be found to be quite dry, and any one having surplus water to dispose of cannot do better than entirely flood the land in the vicinity of their roots, for ordinary rainfall is quite insufficient to maintain large specimens in perfect health and vigour.—J. GROOM.

THE FRUIT GARDEN.

GROS GUILLAUME GRAPE.

I AM pleased to see "Cambrian" (p. 4) speaking of the Gros Guillaume Grape as a winter *Hamburgh*; as such we used to grow it; but it is many years ago. I have seen it for years in succession on the same Vines, and at first sight it looked just like a *Black Hamburgh*, that is, it had short shouldered bunches, large equally swelled berries with a fairly good bloom on them, and I should add well coloured. I have also seen it staged at exhibitions as a *Hamburgh*, and it would have passed muster but for the tasting ordeal, and also the contiguity of the *Hamburgh* itself. It can be obtained in this form, however, only when the Vines are so well grown that they will show fruit at every eye like a *Hamburgh*, that is with wood thoroughly ripened from bottom to top.

The Vines to which I have referred were planted inside, and with the roots all inside. When grown in this form there is not that tendency to show a few of those lanky ill-shaped monster bunches at the extremity of the Vine with berries of all sizes from that of a *Marrow Pea* upwards, and with a greenish foxy colour which is sometimes seen, and exhibited now and then as a new variety. In this latter form it is anything but inviting as a dessert fruit, though well enough as a curiosity. Mr. Meredith, late of *Garston*, used to grow really grand bunches of this Grape compact with berries of even size and large. Many of your readers will remember those monster bunches, but they were always deficient in colour. Some of them used to decorate the imperial table of France, if I remember rightly. I have seen this Grape well grown some twenty-eight years ago in a high stove temperature when the foliage was itself a sight in the autumn; more recently I have seen it do well in an ordinary *Vinery* over a flue at the warm end of the house.

Will any of the readers of *THE GARDEN* tell us the difference between the Gros Guillaume, or say "Big William," *Barbarossa*, and *Seacliffe Black*? and still another variety "improved" is offered in catalogues on both sides of the Channel.

I had the pleasure of seeing the once famous *Seacliffe Black Grape* in the first years of its fame—I may say the only years, and a more wonderful sight, so far as quantity and the immense size of the bunches went, I have never seen; they were as close together as ordinary *Hamburgh* bunches; and in addition were all from 18 in. to 22 in. in length, inverted pyramids, and tolerably compact. The Vines were bought as *Hamburghs*, if my memory serves me, but turned out something else, owing to the peculiar character of the border, which I well remember the gardener relating. They were a puzzle at the time, behaving, as they did, so much unlike either *Hamburgh* or *Barbarossa*. I much fear our old tawny friend in his bad dress is reappearing under an improved name, the bunches credited with rather a mythical performance in the scales.

HIBERNIAN.

Mulching Fruit Trees.—A correspondent of the *American Cultivator* gives a remarkable instance of the benefits of mulching. He says, upon a dry and rocky hillside, in the town of *Shrewsbury*,

Mass., stood an orchard. The trees were old, and had not given a good crop of Apples for several years. The owner having a large quantity of spoiled hay, drew it from the field, and placed it around the trees to the depth of 12 in., covering the whole ground occupied by the trees, omitting every alternate row. This was done in the month of July. The next year every tree where the mulch was applied was loaded with large and fair Apples, while the trees had made a great growth of wood, and the leaves had a beautiful green and spring-like appearance, while those without the mulch bore no fruit at all. The varieties in both cases were the same.

AMERICAN GRAPES.

MR. CARMAN, editor of the *Rural New Yorker*, pertinently asks the question, why the people of England do not try to utilise our native American outdoor Grapes. We have all of us often asked this same question, and wondered why not. It is probable that you have formed your opinions upon past trials of Isabella and Catawba, and, finding them too late, have dropped the subject, failing to keep pace with the progress in Grape culture that has been going on in America. We have now many varieties of northern origin, from four to six weeks earlier than these older sorts, and far healthier, but, being natives of the Southern States, are not adapted to cold latitudes. There can scarcely be a doubt that some of these northern kinds would succeed in Great Britain; the climate of our north-west coast, where they certainly do succeed, is much like yours. We have long been studying their peculiarities, and capabilities, and their tendencies to adapt themselves to the vicissitudes of differing soils and climates, and we find them far more cosmopolitan (if you will allow me a new use of this word in the absence of any that expresses the idea) than *Vitis vinifera*, the class you now cultivate, at five or six times the expense, under glass. In addition to this, instead of one class of Vines we have four, not mentioning several wild ones; also many hybrids between *Vitis vinifera* and two or three of our native classes. Of these hybrids I might remark in passing that they are of more or less doubtful utility here, it being better to improve our own natives. The foreign parent, being tender, carries more or less of its infirmities into the new combination. We usually class them as amateurs' Grapes, some of them, though, under favourable surroundings, proving well worthy of cultivation, but in your colder, damper, and less propitious climate they would be of still more doubtful utility for outdoor culture, and cannot be recommended, while we have many, both new and old, varieties of our several classes and their hybrids we can send you, all purely native, much hardier, and quite as good in quality. Even if it should turn out after trial that our Grapes are not adapted to your climate, their study would prove interesting to your horticulturists, as well as to a considerable class intending to emigrate to this country, and might be utilised in some way not now understood.

Watertown, N. Y.

DANIEL S. MARVIN.

— I was pleased to read the remarks and recommendation of Mr. Ellwanger (Vol. XVIII., p. 503) in regard to American Grapes. I scarcely think your cultivators are aware of the gigantic strides we have made in the production of new varieties, and the consequent improvement in their quality. Up to about the year 1850 we could not count upon half-a-dozen really good varieties worthy of cultivation, especially in the Northern United States. To-day they are so numerous, that we are puzzled to decide what to grow when all have so many claims to recommend them. I think I may safely set down the number now before the public as possessing greater or less merits at fully 100. Mr. Ricketts, of Newburgh, N. Y., who seems to have distanced all others in the hybridisation and production of seedlings, has raised, during the last ten years, upwards of seventy kinds, many of which are very distinct, and some of them of very remarkable excellence. They have been frequently exhibited and described in our pomological reports, but very few of them have passed out of his hands into general cultivation; when they do we shall learn more about them and their value, under probably wider modes of treatment, as well as in different soils and varied localities, some more and some less favourable than the valley of the Hudson.

All attempts at improvement before the production of the Concord seemed to have been made in the wrong direction. In order to eliminate the flavour peculiar to our native Grape, cultivators seemed to take those already somewhat improved and descended from southern varieties, but all too late in ripening. It was not until Mr. Bull produced the Concord from our wild native northern Grape that the first dawn of real improvement began. Previous kinds, as I have stated, were not only too late, or subject to that disease so fatal to Grape culture—the mildew, but the Vines were tender, requiring protection in winter. The Concord was not only early and almost invulnerable to the mildew, but it was as hardy, to use the well-known phrase, as an Oak, and its vigour was quite as marked as its other qualities. It flourished in the remotest parts of

New England, and from the near regions of the White Mountains to the Gulf of Mexico Concord Grapes were everywhere cultivated, and found their way to our markets, and now they are supplied by tons at the low price of 3 to 5 cents per lb., and pay a handsome profit to the producer. The very finest qualities have sold this year at retail for 6 to 10 cents per lb., and are now (December 4) offered in good condition at 15 to 20 cents. Of course we have other varieties, particularly the Catawba, but the leading kind is still the Concord, supplemented by the Delaware, and in a limited way a few more, with the huge specimens of the Mission and Tokay Grapes from that wonderfully productive fruit region, California. At such low prices the consumption has been enormous, and the quantity brought into Boston market almost beyond belief. They are put up in all kinds of boxes of 2 lb., 5 lb., to 10 lb. each, and although the supply appears without limit the demand seems to keep up. New York and New Jersey are regions from whence the supply mainly comes, with the old Catawba from the West.

It was in 1854 that I first introduced the Concord Grape to our cultivators, through the *Magazine of Horticulture*, and when I see these masses of Grapes piled up in the market and sold so cheaply, and in such quantities, and compare the product with that of twenty years ago, when 100 lb. of eatable Grapes could hardly be purchased at 50 c. per lb., the result is as astonishing as it is cheering to know that the production of one single variety in so short a period should be the means of placing within the reach of all, both rich and poor, such an abundance of so delicious as well as so wholesome a fruit. Mr. Bull, the originator, must feel greatly honoured in the high appreciation of his labours, which have been crowned with universal success.

There is even now no hardy black Grape that can compete with the Concord. We have a few which promise well, but the fact is not certain; and we have but one red Grape that can compete with the Delaware, small as that is, and no good white Grape at all. But, thanks to the Concord, the parent of most all that promise well, we have three or four new white Grapes, very recently introduced, that will undoubtedly fill the place so long vacant. They are not yet in general cultivation, but if all that is said about them is true, we shall soon find them side by side with the Concord in all our gardens and in all our markets. The Brighton is the red Grape that I think is destined to become as prominent as the Concord, superior as it is in quality. It is about equal to the best European Grapes.

What has been most remarkable is the production of so many white Grapes, and, singularly enough, some of these we already have, and others now pronounced of the greatest excellence, and they are certainly very beautiful, with that amber tint, peculiar to the Chaselas, are seedlings direct from the Concord, one of the blackest of Grapes, the result of hybridisation. These varieties are said also to have the same large, thick foliage as the Concord, quite as hardy, and in every way almost a duplicate of it except in the colour of the berries, and in having a more delicate flavour. It only shows how great are the variations in seedling fruits, and how little we can foretell the results of such experiments. If I recollect aright, not many years ago the Esperione was regarded as a fine hardy Grape for open culture in the English climate. So much was said about it that I obtained the Vine and fruited it, but in my estimation it was entirely worthless, and in no way to be compared with our fine American Grapes.

It appears to me that these early American varieties are well worthy of the attention of your cultivators and deserve a fair trial. It seems almost certain that such kinds as the Concord, Brighton, and Delaware, would ripen in most parts of England except the extreme north; and would be a valuable addition to your hardy fruits, though they might not be produced as cheaply or in such quantities as you are now supplied with from the rich and favoured Grape country across the Channel, a shorter distance than that from whence the largest supply comes to our own market.

I had just sent you the above when I took up the *Flora* and read Mr. Barron's description of the Catawba, which he places among the black Grapes, though with us it is quite red, with no shade of black, and covered with a rich bloom. Mr. Barron says, "It is comparatively worthless, and only cultivated for its curiosity." This I should not doubt, for here in New England it is not cultivated, and is so late that it now ripens under ordinary culture. In fact, it is later and quite as uncertain as the Black Hamburg, which does ripen sometimes. It was only three weeks ago I tasted some very well-grown and fairly-ripened fruits, raised by the late Dr. Hamilton, of Comandres, Nova Scotia, which were sent to Colonel Wilder. They were cut by the doctor himself, but before they reached Boston the hand that secured and sent them was laid in the earth he loved to cultivate so well, his sudden death having occurred early in November. As we tasted these specimens, reared in a region so far north, we were sadly reminded of the valuable labours of Dr. Hamilton, who was one of the most enthusiastic

horticulturists of Nova Scotia, and through whose exertions many of the best fruits had been introduced into the provinces. I hope Mr. Barron will try, if he has not already, the Concord and Brighton. He will find them very different from the Catawba, though the latter when it matures is a fine Grape. Indeed, its peculiar flavour is so much esteemed, that it is not uncommon to find this variety grown in our cold Graperies, where it produces very delicious fruit, preferred by many to the Hamburg. This simple fact well illustrates the immense value of the progress we have made in the growth of new varieties, for the Catawba and the Isabella were the only two Grapes cultivated to any extent before the production of the Concord. Both were late, the wood so tender that the Vines had to be laid down and covered in winter; and then so liable to mildew and rot, the crop was often an entire failure, so that we were literally without any Grapes, except those from cold Graperies, or imported Malagas, which then sold from 50 c. to \$1 50 c. per lb. The importance, therefore, of all the advancement that has been made can be readily seen and duly appreciated.

C. M. HOVEY.

Boston, Mass.

FRUIT DRYER.

SOME one recently inquired in THE GARDEN as to a fruit dryer. I have no experience of such an article myself, but the following note, which I read in the *Fruit Recorder*, may help your correspondent: "The Boswell Fruit Dryer has a high reputation, and from the large number of reliable testimonials we have before us regarding it, we unhesitatingly recommend it to our readers as one of the best in use. Every farmer having an orchard can make one of these dryers pay for themselves in one season. Address J. K. Boswell, 16, South 5th Street, St. Louis, Mo., U.S." The following curious article on drying fruit occurs in the same paper:—

"**Evaporating Fruit.**—It's not always pleasant to take the 'back track,' or in other words to take back what one has said, but when one sees he is in the wrong, and has committed an error, however, it is honourable and right that he should acknowledge it, so we are on the confessional. In our last we questioned if 150 bushels of fruit could be run through any evaporator in twenty-four hours. We take it all back, having, with the assistance and oversight of Mr. Campbell, run through 120 bushels of Apples from 7 a.m. to 9 p.m., and now have no doubt but, if the proper heat is kept up and good Apples used, from 175 to 200 bushels can be run through our Williams' evaporator in twenty-four hours. We have just put in the second one, and expect to run through the two on an average of 250 to 300 bushels in twenty-four hours. We propose to run the skins, cores, and smallest Apples through a press, working the juice, as fast as pressed out, into a vat and leave it there for a few months, until it has changed into vinegar. Our own orchard of 1000 Apple trees and 1800 bearing Peach trees, with our 3000 just coming into bearing, and about twenty acres of black Raspberries, and large fields of sweet corn, keep us supplied, with what we purchase from our neighbours. We have found it necessary to run two evaporators, not only because of our own fruit, but to keep our large number of boys and women constantly employed. We use the turn-table parer that throws off the Apple, and Topping's corer, made at Walworth, N.Y., as also the slicer—foot treadle power—made by the Star Slicer Co., of Marion, N.Y. With this slicer we can slice 300 bushels of Apples per day, or in fact just as many as a man can put on the spindle, one at a time. Situated as we now are, we do not propose to have our fruit go to market or sell it for a 'mere song' in years of plenty, but put it away in a dry shape to hold until it pays." Let us hope these machines will soon come to the aid of the British orchardist, whose eventual success we have much hope of. It appears there are dryers and evaporators, the last being the more important, and suitable for large orchards, or where fruit can be bought at low prices.

WRONGLY-PLANNED FRUIT HOUSES.

MR. PRIOR (p. 655) has misrepresented my objections to sectional trellised Peach houses in saying that my reasons are that the wood does not get sufficiently ripened. That is one objection certainly, and a true one, but I pointed out several other objections as bad or worse. What do I "mean by ripe wood? do I mean browned wood?" your correspondent asks. Certainly, I mean wood that is both brown and hard, and on which the buds are well developed when the leaves fall off the trees, and I do not hesitate to commit myself to the statement that wood is not ripe that does not show these marks. Will your correspondent send some of his "green," but ripe wood to THE GARDEN office? and perhaps the editors will let me have a look at it afterwards. Glossy brown bark I look upon as being as much a sign of maturity in the wood as colour is of the ripe fruit. Mr. Prior is quite right in saying outdoor shoots are never so tanned as those indoors, and the reason is that they are

not so ripe. Imperfectly-ripened wood does not, however, always mean failure of the crop, but it means a poor crop and impaired health in the tree. The house, we are told, must be of sufficient width to give the trees a chance to make fair-sized specimens. Well, a fair-sized but not large specimen of a Peach tree would be 20 ft. across, and as high. Where then, pray, would the shoots be? Why, just about that far from the light and air if turned edgewise to the sun. Your correspondent cannot prove by any process of arithmetic or reasoning that trees so trained receive more light than when trained with their face to the sun in the usual way, and he cannot disprove that the latter receive the most intense light every time the sun shines. Nor will he ever be able to back his statements up with evidence in the shape of crops superior either in quantity or quality. I may say this without hazarding much.

One great mistake often made by theorists in such matters is the assumption that the light alone is the thing to be gained no matter how far the plants may be from the glass. This is an error that is only found out in practice. Light is of vast importance, but no matter how wide or how clear the panes of the roof of a glass house may be, the nearer the branches are brought to the glass the better for them, provided they do not actually come in contact with it. This is, of course, more important in dark houses than light ones. "J. W. B." puts the question pithily when he says the fruit trees planted only twelve months have already filled the front sections of the trellis—one tree to each trellis. May I suggest that he should ask the designer to show him where he is to train the wood in future years, or what he is to do with the trees under such circumstances? Any practical man can understand in a second what will happen. I would certainly advise those who have houses constructed on this plan to get them altered as soon as possible. The longer they delay the greater will be their trouble, and the worse and more unmanageable their trees will become.

J. S. W.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Wall Space for Fruit Trees.—What length on a wall 10 ft. high would the following trees take up when fully grown? The wall has a south-eastern aspect, and the soil is a rich clay loam with a little gravel through it. You will oblige by giving the length of wall for each tree, and also say whether the following is a good selection as to size, quality, and bearing, viz., Beurre de l'Assomption (on Quince stock), Marie Louise (on Pear), Van Mons, Leon le Clerc (on Pear), Coe's Golden Drop and Braby's Green Gage Plum, Black Tartarian and May Duke Cherry.—GEO. N. M.

Orchard-house Glass.—Can you give me any information about the following? I am thinking of building an orchard house 120 yards long, span-roofed. My idea is to make the front sashes about 4 ft. by 3 ft., and glaze them with one sheet of semi-transparent glass about $\frac{3}{4}$ in. thick. The cost is about one-third of plain glass and bars. What I want to find out is whether the loss of sunlight will so affect the health and growth of the trees as to make the saving in the first instance only a loss in the failure of the house.—S. A.

Melons at Christmas (W. W. Kettlewell, p. 56).—Great credit is due to the gardener who can produce Melons of excellent quality in January, but what about the coal bill? It is by no means unusual, when the closing quarter is as fine and open as it was last year for very late plants to set a crop and ripen it off in November and December, when the fruit may be cut and kept in a warm room for some time after it is ripe; but Melons in December, like Selway Peaches, do not often leave a favourable opinion of the past year's produce on the palate, and gardeners who wish to make the most of their houses prefer planting with more reliable and profitable crops, like winter Cucumbers or Tomatoes.—W. C.

Fruit Growing at Candahar.—The following extract from a letter by a general officer at Candahar may be interesting to some of the readers of THE GARDEN: "Nothing can exceed the richness of the soil, which is, virtually, unfathomable, producing the most magnificent Grapes, Peaches, Apricots, Figs, Pomegranates, Quinces, Plums, Pears, Apples, Mulberries, &c. The crops are enormous, and the trouble and care required very small; so that it may be fairly said that this is the natural fruit garden of the world. The people are, however, without experience in the improvement of fruit and flowers; and they, to the best of my belief, have never tried Hops, and some other things that I feel sure would thrive in this country."—T. FRANCIS RIVERS, *Saundersworth*.

Packing Apples for Market.—"J. E." (p. 5) makes some remarks on this subject which I think apply as much to home growers as to the Americans and Canadians. A maximum price will always be realised by those who pack fairly and make the package equally good throughout. Unfortunately, in the year just closed many growers have had but few Apples to pack, but where they have had some really good prices have been realised, and in spite of the enormous importations good home-grown Apples continue to realise highly remunerative prices, and I am of opinion that a really good sample is likely to hold its place as a profitable article of commerce for many years to come, for the taste for both culinary and dessert fruit is spreading so rapidly through all classes of society, that the demand appears likely to more than equal the supply; for if Apples come within the reach of our artisan and labouring population, as they appear likely to do, there is little fear of the market being overstocked.

With our railway system the over-abundance of one part of the kingdom will find a ready sale in more thickly populated districts in the north where fruit culture has more unfavourable conditions to contend against than in the southern and western counties. It is a mystery to many why the expense of transit of Apples by rail from Maidstone, about forty miles from London, is nearly equal to that of the freightage of the same quantity from America, and I believe that railway companies would benefit by a reduction in their tariff. Here we reckon the carriage and commission to cost 1s. per sieve, the expense being just the same for a sieve of Apples sold for 3s. as it is for one at 10s. or 12s. Consequently, what with expensive transit, and the expense of gathering and sending to the railway, it is no uncommon thing for growers to let their fruit spoil on the trees when the price is low in the market, although the consumers would gladly pay a remunerative price for it if retail markets were established within reach of the densely populated districts.—J. GROOM, *Linton*.

Keeping Apples.—I kept Yorkshire Greening last year good and plump up to July 1 in a drawer in a cupboard in my office; the room is cool, not dry; indeed, the cupboard is a damp one. This is a very excellent variety for cooking purposes, and in July was not amiss for eating as dessert. The tree is a robust grower and most prolific bearer—in short, a hardy, useful variety. Many sorts suffered severely during the winters of 1878 and 1879, but this was none the worse, and seemed to mature itself, and bear heavy crops, as if nothing was the matter with the summer or winter weather. It is late in showing blossom, which may be in its favour. It may be no great achievement to keep this Apple to July, but I think the same conditions would also keep such Apples as Golden Winter Pearmain, Sturmer Pippin, or Ribston Pippin even longer.—HIBERNIA.

SERPENTINE WALLS.

SEVERAL correspondents have lately directed attention to the unsatisfactory condition of wall fruit tree culture, and various suggestions as to its amelioration have from time to time been put forward. Mr. Williams (Vol. XVIII., p. 655) calls attention to a recessed wall which looks well on paper, but I fear that in practice all the evils of permanent copings would be the result. For we know by experience that trees under the protection of permanent copings or coverings of any kind are not only screened from unfriendly frost, but also from genial showers and dews, and that in the long run they lose more in health than they gain by protection. It is, I think, now a pretty generally recognised fact that our failures in regard to fruit crops arise quite as often from imperfectly formed blossoms resulting from partially matured wood as they do from the direct action of spring frosts, and unless our climate has really changed permanently for the worse, I see no reason why we should not have as good crops on open walls as in years gone by. If the demands upon labour were not so insatiable in the ornamental departments of gardening we could afford to give that amount of attention to wall trees which they require, and without which it is folly to expect any system of fruit culture can be satisfactory. In Suffolk and Norfolk there are several examples of waved or serpentine walls that certainly offer considerable shelter from wind sweeping along their faces without any of the evils attending permanent covering, and although I believe the serpentine form was adopted more to give stability to the wall from the violent gales of wind that visit the eastern coast than with the object of sheltering the trees, I think it would be found in practice possible to turn this form of structure to very useful account. At Henham Hall a waved wall is planted with Pears, Plums, Figs, &c., the trees being planted in the centre of recess, and a flowering shrub or climber is trained up on each projecting portion, which not only obviates the stiffness of dead walls, but effectually screens the trees from sweeping winds, and along the top of the wall creepers, such as the *Wistaria*, are allowed to run and form a fringe of foliage and flowers. The extraordinary length that the *Wistaria* will cover can only be realised by actual experiment, and in this case the trees themselves formed a by no means inefficient coping, as they were trained not only so as to cover the top of the wall, but shoots were trained down the opposite side. My own impression is that the fault, as regards failure, does not rest so much with the walls as with the lack of attention bestowed on the trees, owing to the exaggerated importance and priority that is given to productions grown under glass, and to the extra demands on the available labour at bedding out time, when wall trees are at a critical stage of growth, and require daily attention; and unless this can be given them it is useless to expect that with any form of wall we can have good crops. J. GROOM.

THE *World* says that the Duke of Devonshire has threatened to close Chatsworth House and grounds to the public, so annoyed is he

at having a huge hydropathic establishment, built close to his lodges in the village of Baslow. The pile is rapidly approaching completion, and the peaceful little hamlet seems destined presently to become as noisy and busy as Matlock Bath itself.

INDIAN LABURNUM.

(*CASSIA FISTULA*.)

Few trees are more ornamental and certainly none more strikingly attractive when in flower and fruit than that of which the annexed is an engraving. The name *Cassia*, which is now applied to this Leguminous genus, was the classical name of the bark of a kind of *Cinnamon* and to this day the products of certain species of *Cinnamomum* are known by the common name of *Cassia barks*. *C. fistula* or, as it is sometimes called, *Cathartocarpus fistula*, is, as I have said, a handsome tree, ranging from 30 ft. to 50 ft. high with a straight trunk and slender spreading branches. It has abruptly pinnate leaves, which



Cassia fistula.

are alternate and 1 ft. or more in length. It bears pendulous racemes about 1 ft. in length of beautiful fragrant yellow flowers, followed by elongated, cylindrical, indehiscent legumes from 1 ft. to 2 ft., or even 3 ft. long, and $\frac{1}{4}$ in. to 1 in. in diameter; they are mostly nearly straight, but sometimes are slightly curved or bent and marked with numerous transverse striations, corresponding with their flat partitions inside, dividing the whole pod into numerous cells, varying from twenty in a small pod to a hundred or more in a large one. Each of these cells contains a single, small, hard, pale brown shining seed, enveloped in a blackish, sweetish pulp. The tree itself is a native of India, where it is also cultivated. It is likewise found apparently in a wild state in tropical and sub-tropical Africa. In the West Indies, Central America, and Brazil, as well as in other parts of the Tropics, it is largely cultivated. In 1553 the celebrated traveller Belon, who met with this tree in the gardens at Cairo, figured it, and it was also figured in 1592 by Prosper Alpinus. It was grown in this country by Miller in 1731, and young plants of it are now to be seen in many of our botanic gardens. In countries where it thrives the showy fragrant flowers appear in May and June and the pods ripen about the following February and March. The economic value of this tree consists entirely in the pulp that surrounds the seeds, as before described. As found in commerce the pods are for the most part dry, and in this state the pulp separates from the seeds and becomes attached as a

coating to the transverse divisions or walls. These pods are shipped to this country from both the East and West Indies, the latter supplying the bulk of our importations. The pulp is sometimes imported by itself, having been removed from the pods; the best, however, is that which is imported in the pods. Its use is that of a mild laxative, either by itself or in combination with other ingredients. In large doses it is purgative.

Kew.

JOHN R. JACKSON.

FRUIT CULTURE FOR PROFIT.

The Raspberry.

Though the Raspberry is usually classed with bush fruits, yet it is not a bush, but a cane that renews itself annually from its base. Thus, whilst one set of canes are bearing fruit the next set are in the midst of growth. The process of fruiting exhausts the old canes, and having fulfilled their mission they die, and are, or should be, removed early in autumn to give space for the young canes to carry on their work. A plantation of Raspberries on good land, of rather a moist tendency, will last a good many years, but it is never advisable to allow them to remain on the same plot too long to become weak and debilitated, as such plants are not adapted for forming a new plantation; they take too long to establish themselves. Therefore, whether Raspberries occupy a position a greater or a less time signifies little if they are removed whilst still in their full vigour. At the same time, when moved often, say every eight or ten years, a crop of fruit can be secured the first year, as the stools, being of a manageable size, may be lifted entire and planted elsewhere without receiving much, if any, check; and, under such circumstances, the wood is short-jointed and fruitful.

Modes of Training.—There are various ways of training the Raspberry, but in garden culture there is no better way than driving in stout posts in rows 6 ft. apart and 10 ft. from each other in the row. The posts should be about 5 ft. or 5½ ft. out of the ground, and if the bottoms are charred they will last several years, and when they wear out are easily replaced by others. On these posts should be strained a couple of rather stout wires, one on the top, secured by small staples or flat-headed nails, and the other about half-way up; against this trellis the Raspberry canes should be trained, but the trellis need not be erected till the year following the planting of the Raspberries, as if planted in the ordinary way with suckers there will be no crop the first year; but when the Raspberry is made to fit into any regular system of rotation, and moved at the end of any limited number of years, the trellis will be moved with it. In planting Raspberries against a fence of this kind, the stools may be closer in the row than in ordinary culture, so as to furnish plenty of canes to cover the trellis; but there is no advantage in training the canes nearer to each other than 6 in., as the leaves must be allowed breathing space, in order to impart size and flavour to the fruit. Autumn is the best time to plant, but Raspberries are planted any time in open weather up till March. Another way of training the Raspberry is to plant in rather thick rows; drive in stout stakes about 4 ft. high on both sides of the row and about 2 ft. or 2½ ft. from it. A lath or a wire is secured to the top of the stakes all round, and the fruiting canes are drawn across and tied to the lath. This is not a bad plan to adopt where the plantation is to stand a number of years in one position, as full justice is done to the young shoots, they having all the centre of the space to themselves, and are consequently very strong. The lack of attention given to the young wood upon which the future crop depends is in many cases a weak point in the management. The common plan is to allow the young shoots that break away from the base to grow up among the fruiting canes, doing injury to them, and from their crowded condition placing a check upon proper and necessary development. I need scarcely refer at any length to the old-fashioned way of planting the canes in clusters of three or four, and tying them in a bundle to a stake, as everybody must be familiar with it. Raspberry canes, however they may be grown, must have light and air, and this is as important for the young canes during growth as it is for the fruiting wood; indeed, it is more necessary, as with all such plants the fruiting powers depend upon the previous preparation, and any system that produces over-crowding does not permit of the full development of the fruiting capacity of the plant. Raspberries are often planted in rows, and arched over from one stool to the other, *i.e.*, half the

canes are bent over on opposite sides to meet their neighbours, when their extreme ends are secured to each other to form an arch. This is not a bad plan to adopt where stakes are difficult to get, but in windy districts the fruit sometimes gets damaged and blown about. In field culture a different system has to be adopted, as stakes can seldom be had in sufficient quantities, and the plants must be self-supporting. This object is obtained by reducing their length, which enables the rows to stand nearer each other. The rows under this system may be 4 ft. apart and the stools 3 ft. apart in the row. The canes are cut down to 3 ft. in height, and, being grown under a system of full exposure to light and air, they acquire strength to become at that height self-supporting.

New Plantations.—If young plants have to be purchased, or if young single canes of home growth are used, it will be better to cut them down nearly to the ground the first season, as in most cases they will be too weak to bear any fruit, but crops of vegetables may be planted between the rows of Raspberries during this their probationary year. Early Potatoes, Cauliflowers, Lettuces, or Spinach, or any light summer crop will be suitable. After the Raspberries are once established there is not much expense in their culture, as they are better without having the spade among their roots. They root close to the surface, and if the roots are injured by the spade there is quite a useless production of suckers, which tend to exhaust the plants. After the old canes are cut out, which should be done as soon as the fruit is all gathered, the young canes should be finally thinned out, and as soon as the leaves have fallen they may be trained, and then a dressing of manure may be applied and lightly forked in not too deeply to break up the roots, as it will not matter if the manure is not all buried. The loosening up of the crust in early winter is, I think, very beneficial by letting the air into the land to ameliorate and correct its condition, which if at all heavy after being trodden a good deal in gathering, the fruit will have a tendency to become close and sour, and this annual stirring up seems to correct it and put it right. Small sprays of Golden Willow will be found suitable for tying the canes to the wire. In places exposed to strong winds matting is not strong enough to bear the strain, and it is disagreeable to have the canes blown about when in fruit. If the whole surface between the rows can be mulched with manure or Grass about the middle of June the fruits will swell much finer, especially the late ones, and this mulching in dry weather on all soils is beneficial, and on dry soils it is indispensable. Grass will do if manure cannot be had; it should be put on 3 in. or 4 in. thick. It is generally desirable to have a succession of Raspberries for as long a period as possible, and there are several kinds which bear in the autumn on the young wood made the same summer; these of course require different treatment from the summer-bearing kinds, and they may be planted on warm rich soils. The whole of the canes should be cut down to within 2 in. of the ground every autumn. If the young shoots are too numerous in the spring, some of the weak ones should be removed. In the management of the young growths in spring, only a sufficient number should be left to grow up to fill the trellis, all beyond that necessary requirement being a tax upon the plant's resources, and a hindrance to well doing. There is a way of obtaining a succession of Raspberries by pinching off the points of the young side shoots when about 3 in. or so long in May. This delays the fruiting, as the operation removes the flowers and the plant has to break out afresh, and in some cases dormant eyes or buds push from the cane, especially if the wood has been well ripened.

Propagation.—In the propagation of the Raspberry all new varieties are of course raised from seeds; and in ordinary culture plenty of young plants may be obtained for making new plantations by saving the suckers that commonly spring up a short distance from the base of the stools. New or scarce kinds may be increased by layering; peg the long shoots down just beneath the soil, and cut a notch just below each joint to arrest the sap there and thus induce the formation of roots.

GOOD VARIETIES.—Cornwall's Prolific, Fastolf, Northumberland Fillbasket, Pearson's Prolific, Prince of Wales, White Antwerp, and Semper Fidelis (for autumn).

The Strawberry.

Land that will grow good Wheat, Beans, or Potatoes will grow good Strawberries, but as the latter crop remains, as a rule, longer on the land than either of the former, it should have a better pre-

paration before planting. Different views are entertained about this matter; some think simply trenching and levelling the surface sufficient; and so it may be where the land is submitted to the same deep working annually, or even biennially, but in the majority of cases the Strawberries will do all the better if the land has been trenched in autumn or winter, burying most of the manure 1 ft. or so deep, and then taking a crop of early Potatoes the following season before the Strawberries are planted. The stirring and working of the land necessary for the Potatoes brings it into fine condition for the Strawberries. The Potatoes will generally be cleared off in July, the land levelled, and the Strawberries planted about the first or second week in August. There need be no digging unless more manure is required, but a bushel of soot per rod scattered over the surface and worked in with the Dutch hoe will be beneficial. There are two things that I attach a good deal of importance to in Strawberry culture, and these are to well firm the land and to plant early. Planting in fresh, deeply-stirred land will not do so well. The roots rush away downwards quickly in the loose soil, making at the same time a corresponding leaf growth; and though the casual observer might think, from the progress made, that all was well, yet it is not so. Very far from it; the leaf-stalks are long drawn out, and the crowns never acquire the substance that firm ground gives. It is the dense crown of good leathery leaves set on short foot-stalks that gives the fine clusters of fruit, and to obtain this result the ground must be firm, and the plants must be firmly embedded in it. I do not wish to be misunderstood, and therefore repeat, though the ground must be firm, any one who thinks the hard solid firmness of unmoved soil will suffice will be grievously mistaken. To secure a good crop of fruit, the first season not only requires good land well prepared, but good plants are essential; and the majority of cultivators would say: "Oh, layer them in small pots early, keep them well supplied with water, and you will have strong plants to turn out in August." The only drawback to this is, if there is a large breadth to be planted much time is consumed; and if you want to replant a portion of your stock annually, and you may have in addition a lot to prepare for forcing, the chances are, when the forcing stock has been secured, the open air plantation will be composed of weakly, wasted plants only. Of course this need not be so necessarily, but in some cases I am afraid it will. However, there is no doubt layering early in small pots, although an expensive way, is a good one, but for the purpose of open air planting, cutting up a large number of sods of turf into pieces about 4 in. square, and laying them round the old stools conveniently and pegging the runners on them, will answer very well, and when the young plants are rooted, sods and all may be planted together. I consider this a better way than leaving the plants to starve in small pots. The worst plan of all is to take the runners indiscriminately from the beds without any preparation. Such plants cannot be expected to bear much fruit the first year. Where the plantations are renewed often, and are not left long enough on any plot to become exhausted, dividing the crowns and planting out the healthiest and best is not a bad plan. We seem to forget when we insist upon the Strawberry being propagated from runners that it is simply an evergreen herbaceous plant, and that it may be propagated in the same way we should adopt with similar plants with very good results. Under this system Strawberry plantations might be moved on to fresh ground annually, or at the furthest every two years, with very good results, and with far less trouble and expense than layering the runners in small pots; the Strawberries might thus in rotation go the round of the garden like any other crop. As regards the distances at which Strawberries should be apart, no hard or fast line should be laid down; the character of each variety should be considered, and the distances apportioned according to strength and vigour. Then, again, there are great differences in soil; on light land they should be thicker than on heavy strong land, as on the latter a greater development will be attained. But giving due weight to all these considerations, the plants of whatever kind they may be if they are to receive justice should not be nearer to each other than 18 in. In other words, every good healthy Strawberry plant should have a space of 18 in. square to grow in. I am assuming that weakly plants will not be planted, only such plants as will bear a good crop of fruit the first year, and the space I have named is not a bit too much for plants that have been well managed. I have given 18 in. as the minimum distance, but the maximum on strong land and with vigorous growing kinds

might be extended to 3 ft. square for each plant. There cannot be a greater mistake than overcrowding. When grown under such conditions the whole plant has a lean appearance, the leaves being drawn up, lack substance, and the clusters of flowers partake of the same weakly character; many of them will probably fail to set from inherent weakness. Then again, when crowded too much, the fruit does not ripen so well, and in damp weather more of it is spoiled than if room enough had been given to let in the air and sunshine. Rich top-dressings are beneficial to Strawberries, as they encourage surface rooting, and such roots being under the influence of solar warmth are of more use to supply the plant's needs, except in the driest season, than those roots that have penetrated the earth deeply. The two sets of roots, of course, are best, as those working deeply send up moisture in a dry season from a greater depth, and the surface roots tend to correct this action, which would otherwise disorganise the plants and produce barrenness.

Annual Planting.—If we look upon Strawberries as an annual crop, and work them in connection with early Potatoes, we should trench up a piece of land every winter, manure it, and plant it in March with Myatt's Prolific. These would be lifted by the end of July, and the Strawberries planted as early in August as the fruit was gathered. Treating Strawberries simply as we should do any other kind of evergreen herbaceous plant, we should not care for runners, and if it was not for the labour involved the runners would be better removed in their infancy. In growing fruit for a private family we must, of course, have a long season without any break; but in growing Strawberries for market we should contrive to have the bulk of the crop either early or late, or both if we grew fine kinds for dessert. Of course, to supply contracts for preserving it would matter less about their time of ripening, but early and late fruit sells best in the ordinary course of trade, for the simple reason that it is altogether a question of supply and demand, and in the middle of the Strawberry season the markets are generally glutted. If the plantations are permitted to stand two or more years the runners should all be cleared off as soon as the fruit is gathered. Some growers plant a bed on purpose to supply runners, and keep the fruiting plants as free from runners as possible. A gentle slope, with a southern aspect, is well adapted for the early Strawberry plantation, whilst the late bed may slope in the opposite direction or to the west, planting Vicomtesse Héricart de Thury and Keen's Seedling in the former position, and Sir D. Napier and Elton Pine in the latter. The Old Scarlet is a good kind for preserving. The British Queen, Dr. Hogg, Sir Joseph Paxton, President, and Alice Maud are also excellent kinds. Whenever the plants seem to require extra support top-dress early in spring with good manure, and mulch with long stable litter as soon as the blossoms appear. The mulching is important, as it keeps the fruit clean and checks evaporation. In very hot seasons a good soaking of liquid manure just as the fruits are set, or even of pond water, will be very beneficial.

Strawberries in Pots.—I am not going fully into the question of forcing Strawberries, but I have known such profitable results obtained in cold pits and houses with Strawberries in pots, I could not refrain from making a remark upon it. There is often a break in the supply just about a week or ten days before those in the open ground are ripe, and sometimes the springs are late, and then this interval is longer, and this adds to the value of the cold pit crop immensely. So far as the London markets are concerned, the French will enter into competition, but in all the large towns of the north and midlands more Strawberries might be profitably disposed of in May and the early part of June. For giving a few fine fruit young plants are certainly the best, and if I had been writing this a dozen years ago I should have said young plants were always best, but further experience with keeping Strawberries a second year has modified my opinions respecting them; and I always save the best of the forced plants for a second season instead of providing so many young runners. They are set aside and are supplied with water till there is time to pot them; then they are shaken out and treated as young plants, potted firmly in good soil and clean pots, and excellent results in the weight of crop follow. A number of them may be picked out for autumn fruiting if it was required, as blossoms will show on many of them. I have lifted Strawberries from the open ground in April, and planted them rather thickly in good soil in unheated pits, and have been satisfied with the result, and this, of course,

saves the expense of pots and potting. Plants so treated commence to make new roots at once when put in the pits, and the fresh rich soil tends to swell off the fruit to a good size. Of course the flowers must have been hidden away in the crowns in the autumn, as no amount of feeding in spring will generate blossoms. Strawberry plants with strong crowns moved from the open ground in April, planted in boxes, and placed in cool, light houses near the glass have matured an immense crop of good berries at a small cost, either in labour or material. I should rather leave the plants out in the beds all winter and lift in the spring for this work than pot or box them in autumn, as there is always a danger of plants in pots being dried too much or checked in some other way, and the cool open-air treatment seems to act beneficially.

Filberts and Cobnuts.

When so many are looking about for something profitable to plant, why are these not more grown? In a good season the profit per acre is very great, and good Nut seasons are more frequent than with other kinds of fruit if we except bush fruits alone. The Hazel grows in the woods and hedges all over the country, and wherever the common Nut thrives well there the Filbert may be planted. A light well-drained loam suits them best, and it should be well and deeply broken up a month or two before planting, and it may have a good coat of manure, as I propose taking a crop of Potatoes or some other vegetables between the rows, as much for the purpose of keeping down weeds as for the direct profit realised by it, although that may be considerable, sufficient at least to pay rent and labour. November is the best time to plant, and if the Nuts form a plantation of themselves they should be planted 5 ft. apart all ways, *i.e.*, each plant should be allowed a space 5 ft. square. In the course of a few years every alternate bush and every alternate row may be taken out, and be planted in fresh ground to form a new plantation, leaving the bushes in the original one 10 ft. apart, and this distance under the Kentish system of pruning will give plenty of space. In the Nut orchards in the county I have named considerable pains are taken with their pruning, so as to make them assume that shape that induces the earliest and the greatest fertility. The spherical form with a hollow centre is found to yield the best results, and the training begins as soon as they are planted. Low, wide-spreading, open-hearted bushes, abounding with small short-jointed young spray clustering thickly with buds, are the kind of trees we want, as this is the kind of wood that bears the Nuts in triplets, bunches of fours and fives. An unpruned tree makes its way rapidly upwards, the base soon becomes bare, and the fruit is neither so fine or so numerous. It is the sunshine that gives us the Nut harvest, as it does all the fruits and flowers of the earth, and its life-giving fructifying rays cannot penetrate the thick unpruned heads, and so when the trees have been planted a number of years the Nuts become small, and are often few in number. Nuts are very apt to throw out suckers from the base of the main stems; these, of course, must be removed, and the best way is to take them one by one in the hand, and by a sharp movement of the wrist twist them out. If cut off with the knife a base is left for the production of another and larger crop, but twisting them out usually destroys their source. In the Nut the male and female flowers are separate and distinct; in the former a brown catkin appears a little first, and about the time the pollen is ripe the female flower, a small, delicate, red tuft, appears thickly protruding from the buds at the ends of the shoots. Without a good supply of the male catkins of course the Nuts will not set, but branches of the common Nut, if they are furnished with catkins, will do just as well for fertilising purposes as their own flowers, and branches of these whenever necessary may be cut and placed in the heads of the bushes, so that the pollen can fall or be carried by the wind over the branches on which the female flowers are situated.

Select List of Filberts and Nuts.—Red Filbert, White Filbert, Waterloo, Cosford, Pearson's Prolific, Frizzled.

Cob Nuts.—Kentish and the Round.

E. HOBDAY.

The Grey Plover.—I wonder no one has taken exception to Mr. Culverwell's statement relating to this bird (Vol. XVIII., p. 649) and its breeding in England. There can be no doubt he is in error, and I am afraid he must relinquish the idea of having such a valuable prize as a British specimen of the egg. I should strongly recommend him to read the recently published book from which you took that exquisite little picture of the nest of the Little Stint—I mean

"Siberia in Europe." He will there see a full account of the nesting-place of the bird. If my friend Mr. Dresser was in possession of such a treasure as the egg alluded to we should have heard of it long ago.—A. R., *Bromley Common*.

THE KITCHEN GARDEN.

EARLY VEGETABLES.

ONE of my earliest efforts in the way of gardening was carried out on the top of a heap of soil composed of road trimmings and scrapings. This matter had been carted into a Grass field where it lay till the proper season arrived to spread it over the Grass as a top dressing, and this heap I determined to make into a vegetable garden. There were many difficulties to encounter, for there was a cow or two in the field, and there was a clump of trees not far off which harboured linnets and other seed-eating birds. Nevertheless, though a boy, I was not dismayed; youth never is; and as soon as I could obtain permission I set to work with a fork which I had borrowed with which to prepare my seed bed. The top of that heap appeared in my eyes then quite a large garden, and although, according to the customary calculation, a generation has passed away since that time, I have still a vivid recollection of the Cabbages and early Potatoes, and, above all, the Radishes that heap produced. The latter were marvellous for length, size, and succulency. It is well for us to learn our lessons early in life; first impressions are generally the most lasting, and the lesson I learned in those early days of the value of a deep, well-worked soil I have never lost sight of. I have related this little reminiscence to add force to the few remarks which follow. At this season there are often heaps of soil gathered together from various sources waiting for frosty weather to be wheeled on the land ready for digging in, and no doubt such a mode of disposing of such matters would recommend itself to many, but it might first be most profitably used in the production of early vegetables, and then afterwards be employed in top-dressing various crops. Let us suppose, for instance, that we have a heap of mellow, rich, light soil that has been well intermixed. In various parts of the garden there are sunny corners in front of walls, fences, &c. In many places these corners are turned to no account at all; perhaps their insignificance has caused them to be overlooked, but the day is coming, if it be not here already, when the most must be made of every inch of garden ground, not only for the sake of the crop, but to show how the "many mickles make the muckle." If the sunny corners I have just alluded to are covered 15 in. or 18 in. deep in the form of a ridge inclining to the south with soil from the heap under consideration, this will be the place for the early Peas, Potatoes, Cauliflowers, Radishes, Horn Carrots, Lettuces, French Beans, Turnips, &c. After the crops have been gathered the soil may then be collected and used in any other way. There are often blank spaces at the foot of garden walls or in front of houses where a ridge of soil can be laid for a row of early Peas or French Beans that will cause them to turn in many days before they could be obtained in the ordinary way. Of course there is a little extra trouble, but when one feels there is a reasonable prospect of success, who cares for a little trouble?

E. HOBDAY.

EARLY DWARF ULM SAVOY.

THE Savoy which I find most useful in autumn and winter is the Dwarf Ulm; of this I make two sowings in spring, which I find carry me through the autumn and winter until early in spring, when there is plenty of other crops coming into use. I make my first sowing in the second week in April, and the other the first week in May. These come in in succession. I sow my seeds on a piece of well-prepared ground, by digging it deeply and manuring it with rotten stable manure which I find better than manure from the cow sheds, for by using the latter the young seedling plants often club at the roots; at least, I have found the plants to do so on several occasions when the ground was thus manured, and I have also found the plants to club after being planted out in the quarters if different manures are used on the same piece of ground. I sow in beds 4 ft. wide, leaving alleys 12 in. wide between them, and also in rows 3 in. wide and 1 in. deep, covering the seed carefully with an iron rake. If possible, I choose an open piece of ground for the seed bed, for if too confined the seedlings come up spindly, and never make good stocky plants. As soon as the seedlings appear above ground in the beds or just come into the rough leaf, I mix some slackened lime and soot together, using about two parts lime to one of soot. During the afternoon I give the beds a good thick dressing of this compost, and since I have used it I scarcely ever find any of the plants clubbed,

or any of them go what is termed blind, for I believe the compost kills the insects in the ground.

In transplanting I prepare a piece of ground by digging it deeply, and manuring it well with some rotten stable manure, raking it level; I then draw my plants from the seed-bed and plant them 3 in. to 4 in. apart on the prepared piece of ground, giving a good dressing of the soot and lime compost, which I find not only prevents the plants from clubbing, but keeps the slugs from eating them when young. I find that the roots of the young plants derive benefit from the soot and lime, for when drawn to plant in the quarters they have fine fibry roots if taken up carefully, *i.e.*, by raising them up with a digging fork, and being transplanted from the seed-beds the plants grow firm and stocky. If the plants get too leggy before being planted out compact-hearted Savoys need not be looked for. I always prefer to plant my Savoys on a piece of ground which has been trenched during winter, and especially if manured at the same time, for Savoys do best if the manure has been dug into the ground some time previous to planting. They will grow on almost any soil, but they make the finest plants on one of a good heavy loamy character. Fine Savoys may be grown on a heavy clay.

I plant my crop for autumn use in the third or fourth week in May, having the ground properly prepared for planting. I choose a showery day if possible, as the plants do not then suffer from the shift if the soil is moist and the weather dull. I plant 12 in. from row to row, and 12 in. plant from plant; the ground must be kept free from weeds by frequent hoeings during the summer, for there is nothing more beneficial to growth than keeping the ground well stirred. When the plants are growing freely I sow some superphosphate or bone meal between the rows, hoeing the ground soon after sowing the manure, to mix it well with the soil. I have not found any artificial manure to bring on crops so fast as bone meal. Some time in September I am able to cut some good close-hearted Savoys, which carry me on till after Christmas; then the produce of the second sowing will come into use. The young plants will require to be treated the same as the first as regards transplanting and sowing, soot and lime; the plants will be large enough to transplant some time in July, and the crop will be ready to cut from till late in spring, when other crops will be plentiful, such as sprouting Broccoli and different sorts of Kale. The Early Ulm has a good deal in its favour as a general cropper, for it can be planted close in the rows, and the same from plant to plant; and after some of the other sorts have been full hearted for some time, and the leaves open, the Ulm will be found close and compact, still retaining its white colour and crispness till late in the spring—one of the principal points in a good Savoy, and the hearts grow to a good size if the plants have grown freely and have had proper attention during the growing season.

WM. CHRISTISON.

The Rookery, Bromley Common.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Vegetable Showing—a Suggestion.—Before laying my suggestion before the readers of THE GARDEN, allow me to state that I feel certain that I am speaking the sentiments of every gardener in the country when I say that we heartily thank Messrs. Sutton & Sons, Messrs. Carter & Co., and all other donors of special prizes for vegetables, for their long-continued liberality in that respect. The impetus which they have given to vegetable growing is indeed great. The suggestion which I am about to make is on the line of the old and truthful proverb, "Help yourself, and every one will help you." This is my proposal: That we should immediately proceed to action and get up a large vegetable show, to be held, if possible, on Bank Holiday Monday in August, and I may hint that, although the Royal Horticultural Society is still a dead letter, so far as offering prizes is concerned, I believe it would welcome us to South Kensington, which is the place of places for exhibiting vegetables. The first thing to be considered is the subscribers. Let us ask no one outside the garden to subscribe a penny. Five shillings each would be ample. Of course a committee would have to be formed, and there would be many preliminaries to settle; but on these points I shall be silent. What is the opinion of vegetable growers generally as regards this matter?—RICHARD GILBERT, *Burghley, Stamford.*

Brussels Sprouts from Home-grown Seed.—It has generally been considered a special recommendation of Brussels Sprouts seed that was imported, but during the last few years English-saved seed of this important vegetable crop has been gradually gaining in popularity, until now it is considered equally as good as that imported. Last season I grew the produce of the true imported and English-saved seed side by side, and, being a favourable season for their growth, both were excellent; in fact, I never remember having

such a good crop, the stalks being lined from base to summit with not only large, but firm, compact sprouts. We sowed the first crop under glass between rows of early forced Potatoes, and as soon as the young plants were large enough they were pricked out under temporary coverings, and finally planted out in deep drills 3 ft. apart in April; they made exceptionally strong growths, forming such quantities of sprouts, that a large basketful could be gathered off each stalk. Later sowings and plantings of the same kinds of seed produced equally good results; of course the stalks were shorter, but well adapted for spring use. As the Brussels Sprout is equally valuable in early spring as in mid-winter, and to have the sprouts at their best, *viz.*, as hard as cricket balls, successive sowings and plantings must be resorted to, as the sprouts get loose if left too long on the stalks after they are fit for use. I would strongly advise anyone wishing for a constant succession of this excellent vegetable to sow at once under glass for the earliest crop, and again on the open border in March and April, and if they will give a fair trial to home-grown seed I feel sure they will modify some firmly set notions as to the superiority of imported seeds.—J. G., *Linton.*

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 11.

THIS, the first meeting of the year, was well attended, and a select, though not large, exhibition of plants was submitted for inspection.

First-class Certificates were awarded to

Mr. Hill, gardener to Sir Nathaniel de Rothschild, Tring Park, Herts, for—

Carnation Andalusia.—An extremely fine variety of tall growth, bearing a profusion of large, well-shaped blossoms of a clear lemon colour, and having finely fringed petals. It will prove to be a first-rate winter-flowering kind, and a decided acquisition to this class of plants.

Mr. J. C. Salter, Streatham, for—

Vanda lamellata Boxalli.—A handsome variety of an inconspicuous species. Its chief characteristics are the bright amethyst tint of the lip and the dull purple-tipped petals, which render it attractive. The flowers are borne on loose, pyramidal, erect spikes, about 6 in. long. It is a free-flowering Orchid, producing from one to three flower-spikes from each break.

Mr. Cannell, The Nurseries, Swanley for—

Pelargonium Eureka.—A zonal variety with flowers of the purest whiteness of any yet raised, not a trace of the usual pinkish tinge being discernible. The pips are large and symmetrical, and the trusses fine, and produced plentifully on plants of a stout, vigorous habit.

Primula Delicata.—A Chinese variety, of the filicifolia of Fern-leaved section, producing large clusters of flowers well above the foliage. The blossoms are the size of a penny, finely fringed, and of a pleasing, clear, rosy pink hue, with a greenish-yellow centre. It is quite a new tint and very desirable, especially for contrasting with other colours.

Messrs. Veitch & Sons, Chelsea, exhibited a small but choice collection of Orchids, consisting chiefly of cool house kinds. Among the most noteworthy were several species of *Odontoglossum*, *viz.*, *O. anceps*, a rare Mexican species, intermediate between *O. maculatum* and *O. cordatum*, but with deeper and more conspicuous markings. *O. crocidipterum*, a scarce kind in the way of *O. naevium*, but with more yellow-tinted flowers; *O. blandum*, also a rare species in the way of *O. naevium*, with a broad and delicately spotted lip, which is its chief attraction. With these were also *O. prænites*, similar in habit and flowers to *O. crispum*, but the flowers have a tawny yellow ground; *O. Coradinei*, having a long, loose spike, and large greenish-yellow flowers heavily spotted with chocolate brown. These, besides the less rare kinds *O. pulchellum*, *Roezli*, *Andersoni*, *Rossi majus*, were shown finely in flower. Of other kinds worthy of remark were *Leptotes bicolor*, a pretty little species with terete foliage and showy white and purple blossoms. *Cypripedium porphyreum*, a hybrid between *C. Roezli* and *C. Schlimi*, and very similar to the well-known *C. Sedeni*, but with the colour a shade lighter; *Dendrobium endocharis*, also of hybrid origin, and a highly desirable variety on account of the profusion with which its pretty white blossoms are produced. Messrs. Veitch likewise exhibited a well-grown collection of *Cyclamens* and a group of the white-flowered form of *Laurustinus* (*Viburnum Tinus*), a favourite shrub on the Continent. To these exhibitors a silver Banksian medal was awarded.

A similar award was likewise voted to Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, for an attractive

group of Orchids, Palms, Dracænas, Ferns, &c., all tastefully arranged. The Orchids included some finely flowered specimens of *Saccolabium giganteum*, one of which bore seven large spikes, some good examples of *Calanthe Veitchi* with highly coloured blossoms, a pan of the charming white *Masdevallia* (*M. tovarensis*), *Cypripedium Boxalli*, a handsome kind of recent introduction, *C. Haynaldianum* in the way of *C. Lowi*, excellent plants of *Odontoglossum Rossi majus*, and others of lesser note.

Messrs. W. Paul & Son, Waltham Cross, exhibited a large collection of cutflowers of Camellias, representing, besides such excellent kinds as the old Double White, Lady Hume's Blush, and others, some of the more beautiful of the newer varieties that flower early. A box of Tea Roses was also sent, comprising such beautiful kinds as Safrano, Madame Falcot, Niphetos, Isabella Sprunt, all excellent for early forcing. A silver Banksian medal was also awarded to these exhibits.

Mr. Cannell, Swanley, sent some well-grown and profusely-flowered plants of his choicest Chinese Primulas, including Swanley Red, Swanley Purple, Salmon Queen, Lilacina, Striped Fern-leaved, all with flowers of an uncommon colour. The same exhibitor also showed cut blooms of zonal Pelargoniums, comprising a variety of colours all welcome at this season. The most conspicuous sorts were Dr. Denny, Romeo, Olive Carr, J. B. Miller, Fanny Catlin, Col. Seely, Lizzie Brooks, Mrs. Sharp, Aida, Mrs. Moore, and Guinea, all useful winter flowerers.

Messrs. Carter & Co., High Holborn, showed a large and finely-grown collection of their new Holborn Gem Primula. Though the flowers are called blue, they are really not so, but rather deep lavender in tint; nevertheless, they are a decided "break" from any colour hitherto obtained in that direction. The habit of growth, too, seems robust, and the flowers large and plentiful.

Mr. Boller, Kensal New Town, was awarded a silver Banksian medal for a collection of miniature and other Cacti, among which we noticed the rare *Haworthia Bollerii* with spirally twisted rows of leaves, Mr. George, Putney Heath, received a vote of thanks for cut blooms of his new seedling Abutilons, which were, as we have previously remarked, decidedly superior in point of variety and depth of colour to any we have yet seen. A numerous group of double Primulas, including, we should think, nearly every cultivated variety, was shown by Mr. Barron from the Society's Gardens at Chiswick, which considerably added to the attractiveness of the meeting.

In the corridor Messrs. Veitch exhibited a collection of about half a hundred kinds of variegated and coloured foliaged Conifers of dwarf growth, and specially adapted for winter bedding.

Fruit and Vegetables.—Of these there were but few exhibits. Messrs. Saltmarsh, Chelmsford, sent fruits of their new Apple The Queen, a large handsome variety, for which a first-class certificate was given. The same exhibitor also sent good examples of Cox's Pomona. Mr. Woodbridge, Syon House, exhibited fruits of a species of *Musa* (Banana) from Brazil, which were highly approved of for their fine quality. A brace of handsome fruits of Telegraph Cucumber also accompanied the latter exhibit. A dish of Orange-field Tomatoes was sent by Mr. Clark, Rowledge, Farnham, which seemed to be a good winter variety. Messrs. Veitch exhibited examples of their new Lily White and Fulham Purple Seakale. The former is an excellent kind, of dwarf growth, and blanches perfectly white without the usual purplish tips. A dozen varieties of Parsnips, sent from the Society's garden at Chiswick included all the leading sorts.

Scientific Committee.—*Alies lasiocarpa* Grafted on a Silver Fir.—A curious specimen was forwarded by Mr. Noble, of Bagshot, in which the plant had developed a large globular knot at the point of junction. It appeared to be diseased. *Models of Carnivorous Plants.*—Mr. Boulger exhibited and described an interesting series from R. Bøndel, of Berlin, made under the direction of Professor Cohn, and admirably adapted for class teaching. Some discussion followed upon the nature of the absorbent processes and of the ferments, in which Professor Church and Dr. Gilbert and others took part. *Chinese Passion Fruit.*—Dr. Masters exhibited fruits of *Solanum betaceum*, sold in the markets under the above title. He also showed a Potato pierced by a creeping stem of *Triticum repens*. This, he observed, was probably effected by the "circumnutating" process of the plant.

Lecture.—The Rev. G. Henslow commenced by describing the peculiar method of burying its pods exemplified by the Cyclamen, as detailed in Mr. Darwin's new work on "The Movements of Plants," and further illustrated it by *Trifolium subterraneum*, which buries the entire head of fruits and abortive forets; the latter have a claw-like calyx, which bends backwards like the hands of a mole, thereby aiding the peduncle in forcing the pods below the soil and partially covering them with earth. The use of thus burying them appears to be to absorb moisture and nutritious matters, and so enable the fruits

to mature better, as those which are so buried fail to ripen in many cases. He suggested that it might be worth while for growers of Cyclamens to try experiments to see whether they could improve them by thus nourishing the ripening pods artificially. Groups of Chinese Primroses, Abutilons, and Pelargoniums furnished substance for remarks on the various methods adopted by flowers for insect fertilisation, the first being "heterostyled," the second and third being strongly "proterandrous," the former preventing self-fertilisation by the essential organs acquiring different lengths, the latter by the stamen and pistil maturing at different times. He observed that these conditions must never be regarded as absolute, but only relative, though very constant to the species. Then the Chinese Primrose not unfrequently becomes "homostyled" by the pistil equalling the stamens in height, and Pelargonium become "homogamous" and self-fertilising by reducing the time between the maturation of the organs. Double Primroses were described, and the various kinds of "doubling" alluded to as found in different flowers. An interesting group of succulent plants called forth a few remarks on "representative plants;" how the Euphorbias of Africa assumed all the quaint appearances of the succulent Cactaceæ of America, apparently acquired by having grown under similar climatal conditions. Camellias.—With regard to these, which botanists now regard as the same genus as *Thea*, the lecturer suggested that an attempt to make tea from the leaves might be interesting, to see if it was palatable, for plants of the same genus usually contain the same physiological peculiarities; and he instanced the case of the peasants of the Black Forest, who make tea of the common Holly, which is a species of *Ilex*, of which *Ilex paraguayensis*, from which Paraguay tea is made in South America, is another kind.

LATE NOTES AND QUESTIONS.

Plants for Tree Root-infested Borders.—I should be glad of suggestions for the management of a border considerably shaded by trees, which persist in sending their roots into it in all directions. I have dug out the earth, and built almost an underground wall to prevent their encroachments, but they have in two years' time withdrawn almost all nourishment from the soil, in spite of heavy top-dressing. If the trees cannot be prevented from converting the border into a mass of roots, are there any bright perennials hardy enough to hold their own under such circumstances? *Papaver orientale* has succeeded, but *Phloxes* and *Asters* have succumbed, and *Tritomas* failed to flower. As this border is close to the entrance to my house, I am particularly anxious to make it bright and also interesting.—G. G.

Standard Gooseberries.—Having seen mention made in THE GARDEN some time since of standard Gooseberry trees being grown in Belgium, I should be glad to know if they answer; and if so, where they are to be obtained in England.

Best Bedding Variegated Geranium.—Will any of your correspondents inform me which is the best dwarf white and green variegated-leaved Geranium for bedding? I find that *Bijou* grows much too luxuriantly.—B. H. S.

Twelve Pears to Ripen in November and December.—A. Z.—You may plant "Doyenne du Comice," "Thompson's," *Passe Colmar*, "Huyse's Prince Consort," "Huyse's Princess of Wales," *Bewrè d'Arenberg*, *Glou Morceau*, "Knight's Monarch," "Winter Nelis," "Belle de Noël," *Beurré Bachelier*, and "Josephine de Malines. Those marked (*) are the best flavoured with me. Some seasons the last on the list keeps till March. This year the fruit was fit for use in December. I look upon it as the best of the winter Pears.—W. C.

Weeds on Walks.—B. B. C.—There is really no preparation that it is safe to use without its being liable to injure the Box edgings. The best plan is hand weeding, or at this season of the year the surface may be forked up, the weeds and Moss picked off, and then a sprinkling of fresh gravel applied and well rolled down, particularly after heavy rain.—W. H.

Plants to Grow in the Shade.—In addition to the plants mentioned by "Cambrian" (p. 48) as doing well in dark or shaded greenhouses, permit me to say that Abutilons are also most suitable. We have grand plants of Abutilons *Duc de Malakoff*, *Boule de Neige*, *Thompsoni variegata*, and *Lemoinei* in a house so dark that, with the exception of these Abutilons, *Cobæas*, and Ferns, no other plants thrive well.—W. H.

Melons at Christmas.—I am rather sceptical about the quality of the Christmas Melons mentioned in THE GARDEN (p. 56). It is, indeed, so "unusual" that their owner should let the editor have a fruit, in the hope that their "texture and excellence" may be confirmed.—W. H.

Askelma eximium.—We fear that seeds of this plant are unobtainable in this country. Try some of the Cape Town nurserymen.

Mr. W. Allen, "Dangan," has sent stamps for "Garden Annual" with insufficient address.

Names of Plants.—*T. Balding*.—*Primula erosa*.—A. K.—*Hardenbergia monophylla*.—G. A. R.—*Echeveria secunda glauca*. Ferns: These are apparently—1, *Asplenium bulbiferum*; 2, *A. Fabianum*; 3, *A. flaccidum*, but we cannot name accurately from such small scraps.—M. A. F.—*Cattleya chocoensis*.—M. C.—*Dendrobium moniliforme* (syn., *D. Linawianum*).

Castle Donington Cemetery.—The site of the new cemetery being distasteful to Lord Donington, he has offered to find a new site on the other side of the town, and to bear the whole of the cost of taking down and re-erecting a mortuary, chapels, lodge, &c., and has employed the architect of the Board, Mr. Councillor Wills, of Derby, to see the work carried out. Mr. J. Munks, of Hucknall, is the general contractor; Mr. McLean, of Donington Park, is to do the landscape gardening.—Builder.

Specialists.—In last week's GARDEN you ask information as to names of places, large and small, where gardening is regularly carried on. There are numerous gardens of a very ordinary character in every town and district which it would serve no useful purpose to catalogue. Among them, however, there are usually a few devoted to specialities which it would be interesting to notice. One is devoted, let us say to Cacti, another to alpine plants, specially it may be, to Saxifrages, Sedums, and Sempervivums (the three S's), another to exotic Ferns, another to British Ferns, bulbs, variegated plants, and so on. One speciality at a time with a list of the growers would be most interesting to some. There are enthusiasts in most departments, and it is desirable that such become known to each other. I have my own specialities and have felt the benefit derived from meeting others of similar tastes. If you approve of this suggestion and publish in THE GARDEN such a list from time to time, it would, I have no doubt, be easy to obtain the necessary information from your numerous correspondents scattered throughout the country. I can give the names of a few in my own district.—F. [A very good idea. We shall be glad if any of our readers will help in its realisation. For instance, it would be interesting to have a full list of possessors of Orchids and of collections of alpine flowers throughout the country.—ED.]

The Great Beastern Railway and Epping Forest.—Heaven made the country, and the Arch-itec enemy of man's happiness planted it with "semi-detached villas." That no "speculative builder" has been hanged at the entrance of one of his hideous settlements, says much for the forbearance of the multitude. Wherever there is a spot of beauty within reach of London the covetous hand of the demon is stretched out to grasp it. To-day High Beech is threatened; to-morrow it will be Burnham Beeches, and the next day the small remaining portion of Hampstead Heath. The Corporation of London, once the opponent of forest annexation, is now the ally of the Great Beastern Railway, which wants to make High Beech "more accessible." Who are the land jobbers at the bottom of this scheme, or the squatters in "eligible mansions," who wish to have a railway running into their bedrooms? Mr. Bedford, who deserves so well of the people for his work in Epping Forest, must look to this also. People who are afraid to walk or drive two miles in all weathers should live in Harley Street, Gower Street, Victoria Street, or some other London penal settlement—they are not fit for foresters.—Punch.

Cape Town Botanic Garden.—We are glad to learn (says *Nature*) that Professor Macowan, late of Gill College, Somerset East, has accepted the post of director of the Botanic Garden, Cape Town. He will also lecture at the South African College. The appointment of a man whose long and enthusiastic devotion to South African botany has earned him a wide reputation is to the credit of the Cape Government, and is of good omen for the scientific future of the Cape Botanic Garden. This has never yet attained the position which it would naturally derive from the resources of one of the most interesting floras in the world.

The Glastonbury Thorn.—Mr. Roberts sends us from Penzance a sprig of this variety of the Hawthorn in leaf, with some of the flower-buds half open.

THE LIBRARY.

CONSECRATION.*

ALTHOUGH the scope of THE GARDEN does not permit of our noticing this book at length, we wish to state that it is a very able one; contains much curious and interesting matter, and has a good end in view—the prevention in all ways of the desecration of graveyards and cemeteries. That this occurs frequently, especially near towns, is too evident to all who take any interest in such matters, though the care with which it is done prevents, perhaps, the general public from knowing what is going on. We say perhaps, because it is hardly credible that any people professing to respect the dead, even half as much as the pagans did, would allow such desecration to go on.

The appendix of this carefully-written book is clear on many points which may often be in dispute. From it we learn that "*an ecclesiastical court has no power to grant a faculty authorising a churchyard to be appropriated as a public garden.*"

"The ecclesiastical court has authorised the construction of foot-paths for the convenience of parishioners and the planting of the ground with trees and flowers, and has given free access to it during certain hours, but there was to be no disinterment of any remains, and nothing was to be done that could be construed as desecrating or altering the character of the place, or as offering any disrespect to the dead."

* "Consecration." By the Rev. JOS. DODD, M.A., Oxon. With an appendix stating the law with respect to churchyards and burial grounds by J. THEODORE DODD, M.A., Barrister-at-law. London: Jas. Parker & Co.

OBITUARY.

WILLIAM GORRIE.

WITHIN the past couple of years or so death has played sad havoc here among horticultural and botanical friends and associates, notably James McNab, Thomas Methven, Peter S. Robertson, and now William Gorrie has gone hence under distressing circumstances. Mr. Gorrie returned from Dumfriesshire, where he had been on professional business, last Thursday evening, and took his place in the Leith train, which left Edinburgh station at 8 17, but on collecting the tickets about a quarter of an hour afterwards at Newhaven, the nearest station to his residence, it was discovered that life had fled. The son of an eminent arboriculturist and agriculturist, the late Mr. Archd. Gorrie, factor, Annat Lodge, Perthshire, the subject of this notice was, during his earlier years, associated with the late Mr. Chas. Lawson, more particularly in the experimental and literary business of that firm; afterwards he was factor or agent at Prestonhall, Midlothian, until he rejoined the firm of Messrs. Peter Lawson & Son as manager of their nurseries, and for the past fifteen or sixteen years he has been on his own account as consulting landscape gardener, forester, &c., at Rait Lodge, Trinity. Mr. Gorrie has been all along an enthusiastic member of the Caledonian Horticultural, Arboricultural, and Botanical Societies; of the latter he was president for last year, having been succeeded by Professor Balfour, of Glasgow. No one had a better practical knowledge of everything pertaining to landed estates, whether as regarded their management or adornment; he was quite an authority on all subjects connected with plant-lore, and freely imparted what he knew to others; while in his public and private intercourse his sterling worth was only exceeded by his natural modesty of demeanour. William Gorrie had a host of friends, who will sadly miss his manly, genial presence and open hand. At the time of his death he was nearing the threescore and ten years; had been a widower for eighteen years, and leaves no family.

EDINA.

CHARLES EDMUNDS.

ANOTHER familiar face, too, we shall see no more—that of Charles Edmunds, long gardener to the Dukes of Devonshire, and lately to H.R.H. the Prince of Wales, at Chiswick House. He died the other day at Llandudno (where he has lately been residing), aged sixty-nine. Mr. Edmunds was long connected with the Royal Horticultural Society, being alternately on the Council and Fruit Committee, and in both capacities the Society had an efficient helper. In days gone by, when the Society's great shows were held at Chiswick, and the grounds at Chiswick House were thrown open to the public, Mr. Edmunds was oftener met with than he has been lately, but the kindly welcome which he gave his friends on these and on all other occasions will be long remembered. As to his ability as a horticulturist, the gardens at Chiswick House bore ample evidence.

JOHN SPENCER.

YET another name must be added to the list of the departed—that of John Spencer, long gardener at Bowood, and latterly agent to the Marquis of Lansdowne in that part of Wiltshire. Mr. Spencer was no ordinary gardener, but, like Sir Joseph Paxton, outgrew his profession, to which, however, he remained to the last much attached. It was he who, in connection with Mr. Fuller, first brought into existence the Alexandra Park. He was at one time a member of the Council of the Royal Horticultural Society, in the proceedings of which he took great interest. He was vice-chairman of the Calne Union, chairman of the Assessment Committee, and also one of the directors of the North Wilts Bank. In private life he was much respected, and his loss will be widely felt. He was born at Langley, in Derbyshire, and was seventy-two years of age. He was decidedly one of the most able of the now-almost-passed-away race of our best gardeners—a worthy contemporary of James McNab, David Moore, Wilkie of the Phoenix Park, Fraser, the Irish landscape gardener, and William and James Barnes. He showed the finest collections of fruit at Chiswick in days long gone by that were seen there, Pine-apples especially.

THOMAS TUCKER, foreman packer for eighteen years to Messrs. Carter & Co., died suddenly the other day, leaving a widow and six children unprovided for. A few friends and fellow workers have subscribed a fund for temporary purposes, and a committee has been formed to receive subscriptions from anyone desirous of helping the family. Contributions will therefore be thankfully acknowledged by the committee, and should be addressed to it, care of Messrs. James Carter & Co., High Holborn.

No. 479.]

SATURDAY, JAN. 22, 1931.

[Vol. XIX.]

"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

GARDEN THOUGHTS.

"E. H. W." inquires,

What is the difference between summer bedding and spring bedding that the one should be preferred to the other to the exclusion of either? The formality of one is equal to the formality of the other, if that is an objection; and if the delicacy of spring colouring be the excuse, it is now easy to find in summer plants tints that shall rival even the tender hue of Forget-me-not itself. Let us not forget that the greatly increased interest in gardening, which the last twenty-five years or more have witnessed, is due in a large measure to "bedding." I for one speak for myself, and say, that if the glorious colours of bedding plants had not filled my childish heart with love and admiration, as they made our dull, northern, green and gray tones to glow with something of the glory of the Tropics, I should not have the love of flowers which I now enjoy; and though that step be past and, as I trust, a higher round attained, may that first rung be never broken from the ladder, for fear lest others should not mount thereby. Let each have a place. No garden is too small for one glowing bit of colour, none too tiny for a cherished nook where rare and delicate (though hardy) plants shall interest at all times.

The difference between summer and spring bedding, as I see it, is this: the spring garden, being composed of flowers, indigenous or acclimatised, and being more mild and subdued in its colouring, has a more natural aspect and adaptation, more grace of congruity in itself and its surroundings, a fresher, healthier, more enduring beauty than those more brilliant strangers, who come to us from sunnier climes, and collapse, many of them, in our drenching showers. Primroses, and Violets, and Cowslips (for what are those glorious Oxlips at Belvoir but Cowslips improved?), Daffodils, Daisies, Polyanthus, Heartsease, Forget-me-not belong to us, and look always at home and happy. They seem to live in harmony and peace, while their more splendid sisters suggest sometimes an idea of rivalry, and of that jealous ambition to "cut out" each other which may be seen in drawing-rooms as well as in gardens, and which is followed too often by disastrous issues. The spring garden welcomes you with sweet perfumes (Mr. Ingram had banks of Russian Violets at the chief entrance when I last visited those lovely "slopes"), but the summer garden has little incense beside the Heliotrope, which very soon overpowers. The vernal flowers seem to ask, the summer to command, our admiration. The former say, "Love on, and linger;" the latter, "Worship, and go." And people do go—I have noticed it again and again—much more quickly from the summer than from the spring display. The electric light is very beautiful, but for a continuance give me the moon.

Then I find, as I wander in the pleasant gardens of Memory, that, while the summer beds have faded and disappeared, with some exceptions, such as the first combinations I saw of Manglesi and Viola cornuta, Flower of Spring and Coleus Verschaffelti, my recollection retains multitudinous beds of Primrose and Forget-me-not, Tulips rising out of the golden Sedum (acre aureum), crimson Hyacinths from white Candy-tuft, purple Violets with white Arabis, white Violets with blue Aubrietia, with many, many more.

Mistakes are much more frequent, from the causes to which I have referred, in the arrangement of the summer beds. They require a most refined taste, anxious forethought, and large experience. The late Mrs. Granville Vernon, of Grove

was, I think, the most successful artist of many accomplished gardeners whom it has been my privilege to know in this department of floriculture. She had all the advantages of a highly cultivated love of the beautiful, access to the best gardens in the land, ample means, one of the cleverest gardeners (Mr. W. Park) that ever struck a cutting, and yet very few had any idea of the pains which she took, the head-work as well as the hand-work, which she bestowed upon her garden. As soon as the plants of one season had attained their full efflorescence, she designed the blooming wonders of the next; and you would see her with a plan of her garden before her, putting in the colours and the names of the colourists for the following year, rectifying disappointments, and originating new ideas, because she knew so well the difficulties, detected so quickly, and confessed so freely the failures incidental to her work. And when her deep love and patient art had been most triumphant, a thunderstorm might come, as it came one night when I was at Grove, in August, and the glory had departed.

Perhaps you may find in a county six amateurs, and as many professional gardeners, who, like "E. H. W.," understand this art. But the rest! As the sounds produced by that intoxicated organist, who sat on the manuals and fingered the music-stool, compared with a performer by Dr. Stainer of St. Paul's; as the likeness drawn by a schoolboy with the smoke of a candle on a whitewashed wall of some preceptor whom he does not love compared with a finished portrait by Millais or by Long, so are some of the gaudy daubs, which everyone has seen everywhere, compared with the flower-pictures of the true artist. And they have been (I say *have been*, because any one who sees many gardens, as I do, can judge for himself whether the bedding-out system is on the increase or decrease) in the proportion of fifty to one. Ah! what a guy they have made of Flora! No amount of beauty can stand a green bonnet with blue ribbons, a yellow body with a crimson skirt, black stockings and white shoes, mauve parasol and vermilion gloves!

There would be less peril if one system could be practised without the other; but this may not be without a dreary exposition of brown fallow. If you bed out in spring, you must replenish when the bloom fades in May or June; and if you bed out in summer, you cannot contemplate blank ugliness from November to June. What is the conclusion, the sum of the whole matter? This: if you have taste (or think you have), space, and means, make experiments in every branch of horticulture, and I heartily wish that

Wheresoe'er thou goest, good luck
May fling his old shoe after!

Have beds and borders, rockeries, Ferneries, Heatheries, wild gardens, water gardens, Italian, Dutch, American gardens, spring bedding, summer bedding, sub-tropical, succulent bedding; but if your experience, acreage, and exchequer are limited, adhere to the older, safer, less artificial system of growing hardy plants with flowering shrubs and evergreens, which shall give you a succession of beauty all the year round arranged to the best of your ability in borders and in beds. Be satisfied, at all events, with the single specimen in the quiet nook which "E. H. W." commends. Learn to ride before you go a hunting, to write legibly before you begin to flourish, and to mix your colours before you call yourself an artist. When I came to the conclusion that it was impossible for a gardener, however skilful and industrious, to do justice, with only one regular assistant and very little occasional help, to a stove, two greenhouses, a Vinery, Rosery, rockery, herbaceous garden, lawns and Grass plats, kitchen garden and

orchard, spring and summer bedding-out, and when I considered thoughtfully from which of these departments I derived the least gratification, I speedily decided against the two which I have named the last, because I could still have the enjoyment of my spring flowers in the borders and shrubberies, where they look much happier in my eyes than *en masse*, could have more tender plants in my greenhouse, and should see no gaps, no incongruities (mainly the outcome of that vaulting ambition which o'erleaps itself) in the smooth green turf, which, pleasant to the eye and to the feet of those who handle the racquet, grows upon the grave of my bedding-out.

"In a fine garden the first thing that should present itself to the sight should be an open lawn of Grass, which in size should be proportionate to the garden. The width of it should be considerably more than the front of the house, and if the depth be one-half more than the width, it will have the better effect." So wrote one of our great English gardeners 130 years ago, and so since then have thought and think the greatest of our landscape artists. "The chief object of all the imitative arts," writes Loudon, "is the production of natural or universal beauty. Few scenes have a more beautiful effect in pleasure grounds than a velvet lawn, presenting a surface of uniform smoothness and verdure." Beautiful trees gracefully, that is naturally, disposed on beautiful lawns, level and undulating, are the first principles of Robert Marnock's art, and the main causes of his great success. In his excellent instructions, "How to Lay out a Garden," Mr. Kemp writes, "A garden will always look meagre without a good open lawn. One broad glade of Grass should, therefore, stretch from the best windows of the house to within a short distance of the boundary, with as little interruption from walks as possible. *The plants and groups may be arranged in regularly on either side of this opening, and, where the space will permit, there may be smaller glades through and among these at varied intervals.* If such a broad glade of greensward can be had on two or even three sides of the house, the effect of size will be still more fully realised." To my mind, we have in these few lines (the italics are mine) an admirable outline of a garden.

But tastes are diverse, and so are sites and grounds; and I do not wish to thrust my spectacles upon everybody else's nose. In my Oxford days, "when I was green in judgment," there was a fashion, set by a good-looking nobleman, of wearing an eyeglass. Ophthalmia (or the blindness of puppydom) prevailed in the *beau monde* of the High Street, and I went, with several other young peacocks, to buy a glass. A little disconcerted at first by the curiosity of the inquisitive optician to know what number I preferred, and disappointed when, on replying "Number one" at a venture, I was presented with a piece of crystal which effectually clouded over and hid from my gaze every article in the shop. I subsequently discovered an instrument which enabled me to decipher the name of Spiers on the other side of the street, and finally succeeded, after much laborious and secret practice, in retaining it, with an expression of intense agony, but without manual assistance, in my right eye. I tired of it, after running against a proctor and being very nearly run over by a cart, and gave it to a friend who happily took it up in my room, and remarked that it was just his focus. He asked: "Could I really spare it?" and I remembered Shakespeare's beautiful words, "The quality of mercy is not strained," and answered bravely that "I could." So I would have everyone use his own eyes. It is not the disuse, but the abuse against which I protest. A famous florist and clever writer, a brother whom all gardeners who know must love, wrote a letter

some seven years ago on bedding-out, in which he assumed that we who opposed the massing of half-hardy plants—as we oppose it still wherever it is intrusive, exclusive, feeble, or garish—were decrying colour, could not appreciate that which Ruskin terms the nobleness and sacredness of colour; in short, that we were colour-blind. The editors of the publication to which the letter was sent wisely and kindly anticipated and silenced indignant rejoinders by appending this annotation: "It is the injudicious use, not the fitting employment, of colour which is objected to, as we understand the case."

"E. H. W." says that he should not have had the love of flowers which he now enjoys if he had not seen and admired in childhood the glorious colours of bedding plants. If Mendelssohn had told me that he attributed his delight and power in music to the fact that he listened as a boy to military bands, I should have ventured to remark that a blackbird or a flute would have stirred with equal, if not larger, joy the innate spirit within; and so I am convinced that "E. H. W.," a born gardener, would have been what he is, one of the most appreciative, accomplished, crude florists in Floradom if he had never seen a Pelargonium. My belief is that he gazed in ecstasy, though he does not seem to remember it, upon the chintz Roses of the bed on which he reposed in infancy, cried for the flowers upon the papered wall, and was only soothed by the ribbon borders which he saw upon his nurse's cap. His love is so large that for every branch of floriculture, like a fond mother for her score of children, he has ample room in his heart, and it is no fault nor forfeiture of that parental love if some junior member of the family should occasionally embellish his countenance with a rash, or will not allow his weaker brother to have his fair share of the bed; but I think he loves the modest little ones best, and if I went to seek him in his picturesque and pleasant garden I should not expect to find him gazing on his gay parterres, but in the sheltered corner, or by the sunny bank admiring some wee Alpine gem, or congratulating some delicate Tea Rose, which he had nursed through a long illness, on its restoration to health. It is in these simple pleasures, these daily delights, that the true gardener finds his happiness, and though ever and anon he takes off his apron and puts on his best coat, and enjoys a feast as much as any man (terraces ablaze with their summer sheen, grand conservatories, flower shows, and the like), he goes back all the more gladly, like a scholar from the Bodleian to his study, to the quiet nooks and old favourites which he knows and loves so well. With these, I say, the gardener finds his happiness, because in these, "the purest of all human pleasures," he recalls, though in this world he can never repeat, those dearest of all days when by brookside and woodside, and on meadow paths, he made his first *début* as a florist, with a Primrose or a Cowslip in his tiny hand.

Cauntton Manor, Newark.

S. R. H.

SOME NOTES ON HARDY PLANTS.

Christmas Roses.—In enumerating hardy winter plants worthy of notice, Canon Hole must not forget *Helleborus fœtidus*, which is a most interesting subject, either for distant effect in the garden with its bright light green tufts of inflorescence, or for using in vases mixed with brighter subjects; in either case a head of bloom lasts a very long while, and in vases displays its elegance of form and outline to great advantage. I have at present also in bloom in the garden a species or variety called *Helleborus intermedius*, which, though dull in colour, is very graceful in form, and not to be despised, because it is the earliest of the genus to bloom next to *H. niger*, and associates well with the latter. My plants of *H. colchicus* were just beginning to throw up good strong flower-

stalks when the present severe weather set in; they have no shelter except that afforded by the proximity of some evergreen shrubs, and I am anxious to see whether they possess sufficient hardiness to be proof against this inclement season.

Tussilago fragrans, or Winter Heliotrope, as it is sometimes called, a plant which many have recommended to be entirely banished from mixed borders, and even shrubberies; but who could have the heart to do so that possessed well-established patches of it sending up their delicately perfumed blossoms in profusion, as they have done this year at Christmas and Epiphany. Though dull, and at first sight insignificant, these flowers have a charm all their own, and as the heads of bloom live and preserve their sweetness long, and the flower-stalks lengthen and attain more grace in water, they may be well included among our winter bouquet subjects.

Berried and other Vase Plants.—I will just mention the value of small branches of *Cotoneaster Simonsi*, adorned with their gay red berries, and the handsome pods of *Iris foetidissima*, splitting open to show their scarlet seeds, both of which may be introduced most happily into vases, accompanied by some of the more richly tinted leaves of *Berberis Aquifolium*, a few of the sword-like leaves of the variegated form of the *Iris*, and of the splendid marble leaves of *Arum italicum* (a great favourite here), a bunch or two of *Laurus-tinus* and Winter Jasmine, and some drooping tassels and deep coloured foliage of *Garrya elliptica*, or catkins of the common Hazel, and I have enumerated hardy subjects enough to cheer and brighten our rooms through many a dark day of winter. I must not forget, however, to call attention to that little gem of gems, *Crocus Imperati*, a true winter *Crocus*, blooming now, and establishing itself as easily as the common yellow species; if gathered in the bud and brought into a warm room it soon expands and shows the beautiful purple lining to its buff petals, a combination of colours that cannot fail to elicit the admiration of all beholders.

Edging Plants.—Many substitutes for Box as an edging have been suggested at various times and tried with varying success. I have been fortunate in pressing *Festuca ovina glauca* into the service for this purpose, and I find it answers capably; it will grow anywhere and put up with any kind of treatment. Of course if wanted to be kept very neat it must be replanted carefully every now and then, but any little scrap dibbled in either in spring or autumn very soon establishes itself, and ordinary clipping and chopping keep it in fair order. Its pleasing neutral tint is a great recommendation, as it harmonises well with anything that is planted next to it, and never looks out of place in any situation.

Golden Rods.—On looking over a collection of dried specimens of the Canadian flora a few days ago, I came upon no fewer than nine species of *Solidago*, collected on the banks of the St. Lawrence, and I could not help wondering whether if "*Justicia*" had seen the great clumps and masses of these brilliantly-coloured plants in their natural beauty, lighting up the edges of the woods and the borders of the swamps, he might have hesitated before so sweepingly condemning the whole race as unfit for introduction to any garden. I was very glad to see in a recent number of THE GARDEN that your New England correspondent put in a plea for the alpine variety of *S. Virgaurea* as a fit denizen of the rockery, and am of opinion that several others might be tried with advantage in such a situation, while some of the taller and stronger-growing species are just fitted for the rougher parts of the grounds and outskirts of the shrubberies, certainly appropriate companions for, and not more weedy subjects than many of the tall-growing *Asters*, *Aconites*, and *Eupatoriums* that "*Justicia*" does not fail to recommend. He should not forget that in such a matter as favouritism in plants there is plenty of room for divergence of opinion, and though the tastes of two persons may differ as regards flowers it does not follow that one of them possesses bad taste. I know some people who much admire clumps of bright Golden Rod in a garden, and ladies who would rather have sprays of some of the species to put in their vases with other flowers than many a more pretentious inhabitant of the herbaceous border.

A. S. M.

[I, too, have seen the Golden Rods in Canada, though not on the St. Lawrence, and before had a long experience of their bad effect in the mixed border, which they never adorned, while impoverishing and crowding it for other good plants; and when I saw them in Canada and New England in masses, like "*A. S. M.*" I said, What a good thing it would be to form masses of these in a wood or copse or shrubbery at home, but I saw nothing to make me wish any of them in a choice border. In the wood or copse, or even hedgerow, any one with the slightest love for plants could arrange them in scattered groups or masses just as they are in their native woods, and they are as hardy and free as Nettles; besides in any wild or rough place, while their late and not long-lived bloom will be charming in autumn, they will not cause a blank or a dis-

appointment at any other time. The difference between myself and "*A. S. M.*" is simply a question of the proper place for them. The point well illustrates the meaning and aim of the wild garden.—J.]

NOTES OF THE WEEK.

Azara Gilliesi.—A very beautiful evergreen shrub has been sent to us by Messrs. Rodger, McClelland & Co., with deep golden catkins, a very singular and novel plant. It is almost hardy in our southern counties where planted in the open, but it thrives best if planted against a sheltered wall, and, being rather a rapid grower, it soon covers a large space. It is the finest of the few *Azaras* introduced from South America.

A New Bromeliad (*Chevalliera Veitchi*).—This is one of the most remarkable plants we have seen for a long time, and the first time we met with it in flower was the other day, in the General Horticultural Company's nursery at Anerley; indeed, we believe it has flowered but two or three times since its introduction. In habit of growth it resembles a Pine-apple plant, the leaves being long and narrow with prickly margins, and the flower-stem is produced in a similar manner from the centre of the tuft of foliage. The inflorescence consists of a cone of bracts and flowers about 4 in. long and 1 in. in diameter. The bracts or floral leaves are short and recurved, pointed and beset with prickles on the edges; their colour is a deep red, with which the tips of the small white flowers, which are just discernible, make a striking contrast. The height of the flower-stem is about 18 in., and slightly overtops the foliage. It is a native of New Granada, where it was discovered and collected by Mr. Wallis, who sent plants of it to Messrs. Veitch & Sons, Chelsea, in whose nursery it flowered in the summer of 1877, being the first time it had done so in cultivation. There appears to be some dissension with regard to the nomenclature of this fine plant. The original plant was named by Mr. Morren, of Liege, who makes a special study of Bromeliads, *Chevalliera Veitchi*, the generic name being founded by Gaudichaud some forty years ago. Mr. Baker, of Kew Herbarium, however, regards it as a species of *Echmea*, and under the name of *E. Veitchi* a coloured illustration of it was published in the *Botanical Magazine* three years ago. Be this as it may, the plant is a remarkable one, and we hope soon to see it less rare than it is at present.

Eucharis candida.—This lovely bulbous plant, of which we gave a coloured illustration in THE GARDEN (Vol. IX., p. 360), is, we observe, fast becoming less rare than it has been. In one of the houses at the Melbourne Nursery we saw a quantity of plants of it, and several among them were in flower. It is scarcely inferior in point of beauty to the popular *E. amazonica*, and by many it is preferred to that kind on account of the smaller size of the blooms and more graceful flower-stems. The leaves are very similar to those of *E. amazonica*, being oblong-oval in form, and having a pointed apex, and wedge-shaped base. The flowers are borne in umbels of from three to six in a cluster, and have pure white petals and a deep corona tinted with pale yellow. As regards its culture it is similar to that of *E. amazonica*, so far as we have seen it cultivated, but on this point cultivators in general have not yet had sufficient experience.

Conifers for Flower Beds in Winter.—At the last meeting of the Royal Horticultural Society at South Kensington, Messrs. Veitch & Sons, Chelsea, exhibited a remarkably fine selection of the most suitable of dwarf Coniferous plants for winter bedding, which with their varied hues judiciously arranged and contrasted had a very telling effect. The golden and variegated kinds predominated, and there are few other arrangements where such shrubs could be used with better effect. Amongst some sixty kinds exhibited the following were the most conspicuous and apparently the most serviceable for winter bedding, viz.—

<i>Abies Hookeriana</i>	<i>Juniperus virgin. glauca</i>	<i>Retinospora plumosa aurea</i>
<i>Cedrus Deodara</i> and vars.	<i>japonica</i>	<i>Taxus baccata aurea</i>
<i>Cupressus Lawsoniana</i>	<i>aurea</i>	<i>fastigiata</i>
<i>alba spica</i>	<i>Pinus sylvestris aurea</i>	<i>canadensis</i>
<i>erecta viridis</i>	<i>Retinospora eicoides</i>	<i>aurea</i>
<i>argentea variegata</i>	<i>filifera</i>	<i>pendula aurea</i>
<i>nana</i>	<i>pisifera aurea</i>	<i>Thuja orientalis</i>
<i>lutea</i>	<i>obtusata aurea nana</i>	<i>argentea</i>
<i>thyoides</i>	<i>squarrosa</i>	<i>aurea</i>
<i>variegata</i>	<i>cupressoides</i>	<i>pendula</i>
<i>Juniperus neaborensis</i>	<i>plumosa</i>	<i>plicata</i>
<i>virginiana</i>	<i>alba picta</i>	<i>variegata</i>
<i>aureo variegata</i>	<i>argentea</i>	<i>Wareana</i>

Pritchardia grandis in Flower.—The unique specimen of this noble Palm in the General Horticultural Company's nursery at Anerley is now flowering for the first time, we believe, in cultivation. There is nothing remarkable about the inflorescence, which is similar to that of most other Palms, but it is, we think, a fitting opportunity to draw attention to the fine aspect which the plant presents even in

ts confined quarters in the Melbourne Nursery. It is one of the fan-leaved section, the blades of the leaves being about 18 in. broad, with a deeply-toothed outer margin of a deep green hue, and borne on long slender stalks. The plant is 10 ft. high, and is well furnished with foliage from base to top, and forms an extremely ornamental object. It is to be regretted that such a fine species is so rare, though we understand that seedling plants have been recently raised in the Royal Gardens, Kew; therefore we hope that in course of time we may see some thrifty young plants in that garden and elsewhere. If we mistake not, the credit of introducing this Palm is due to Mr. Bull, who exhibited it some few years ago at several exhibitions, and since it has fallen into the hands of Mr. Wills it has likewise done duty in this direction.

The Winter Heliotrope.—The sweetest flower by our canal banks and by the Dodder River just now is *Petasites* (*Tussilago*) *fragens* (the Winter Heliotrope). I saw some children to-day scratching up its fragrant flowers out of the crisply frozen snow. I do not remember it as a wild plant in England, although it grew and flowered well under the Old Sanctuary wall almost within the shadow of the cathedral at Westminster. Here in Ireland, near Dublin, it is a common wayside weed, and a very welcome and fragrant one withal.—F. W. B.

The Weather at York.—The cold here during the past few days has, I believe, been more continuously severe than has ever been recorded in this neighbourhood.

	Jan. 13th	14th	15th	16th	17th	Max.	Min.

	+18°	+10° Fahr.
	+16°	-5½°
	+23°	-1°
	+12°	+3°
	+2°

Four thermometers examined from 50 to 150 yards apart all at from 4 ft. to 5 ft. above the ground. At the point of the greatest intensity the variation did not exceed 3°. The mean temperature from midnight on the 13th to midnight on the 17th was under +9° and throughout Tuesday was +7° Fahr. Three of the thermometers are Negretti's, and one T. Cooke & Sons.—JAS. BACKHOUSE.

Amaryllis (Hippeastrum) Leopoldi.—This is by far the finest of the winter-flowering kinds, and much superior to *A. Hendersoni*, of which we gave some account a short time since. Both are now finely in flower in the Melbourne Nursery, Anerley, and therefore can be readily compared. *Leopoldi* has flowers from 6 in. to 9 in. across measuring to the extreme tips of the petals, and the latter are so broad that they overlap each other, thus forming almost a perfect cup. *Hendersoni*, on the contrary, has flowers of less diameter, and the petals are narrow. The colouring, too, of *Leopoldi* is the finest; on the lower parts of the inside of the flower it is a deep blood red, relieved by a few dashes of greenish white, and the upper parts of the petals are wholly of the latter colour, their outside being also the same in tint, but much less pronounced. The colour of *Hendersoni* is similar, but not so bright, and the two colours are more liable to merge into each other, thus giving the flowers a muddy appearance. These *Hippeastrums*, or Knight's Stars, as they are popularly called, are extremely desirable for winter flowering, their noble blossoms being particularly useful for cutting purposes as well as for the embellishment of stoves at a season when there is a paucity of flowers. Some little skill is required in the management of these bulbs as regards their resting period, which should be in the latter part of summer, and then the bulbs would become matured for winter flowering.

Aponogeton distachyon is very fine here now in pans and tubs, also in wet earth without water; a plant in a 5-in. pot has seven spikes among its short-stalked fresh green leaves. I find its tubers force as easily as a Roman Hyacinth if the pans are put in a sunny corner during summer, and the mud around them baked dry. Treated thus they rest for four or five months, and when put into a warm house in October they shoot up like Asparagus, and flower far more freely than when allowed to keep all along growing and flowering. As a winter-flowering aquatic it has no equal.—F. W. B.

American Plants in Hyde Park.—We learn that Her Majesty's Office of Works has entrusted Mr. Anthony Waterer, of Knap Hill, with providing and planting a large number of Rhododendrons and Azaleas in Hyde Park during the approaching season. The plants are unusually well furnished with flower-buds, and with fair weather a fine display may be expected.

Minorea Virgin's Bower (*Clematis balearica*).—A correspondent from Falmouth sends us flowers of this rare species known also under the name of *C. calycina*. It is an elegant evergreen shrub with finely cut foliage and pale yellow flowers about 1 in. across, marked on the inside of the sepals with copious spots of deep purplish red. It is a very old introduction, having been cultivated for

nearly a century. It is well worthy of culture, as it flowers under protection at this dull season when but few flowers are available.

Hardy Flowers and the Frost.—From 15° to 20° of frost nightly is rather hard on outdoor flowers; still 2 in. of snow will save them much. This frost was indeed necessary. Things were moving too fast, and these spring frosts cut everything to pieces. Mr. Bain, a sharp observer, says spring bulbs and early flowers are always better after a hard winter. They rush up altogether when mild days do come; after mild winters they dribble in.—F. W. B.

Special Prizes for Competition at South Kensington.—The following is a list of special prizes to be competed for at the Royal Horticultural Society's exhibitions during the ensuing season:—

	March 22.
Nine Hyacinths and nine pots of Tulips	Silver cup and £5 in two prizes, given by a Fellow of the Royal Horticultural Society.
	April 19.
One plant of Polyanthus Duke of Wellington	21s. in three prizes, given by Mr. G. Smith, of Edmonton.
	Great Summer Show, June 3, 4, 6, and 7.
New Plants	Twelve Silver cups, given by Mr. W. Bull.
Six distinct kinds of fruit	Silver cup, given by Messrs. Boyd & Son, Paisley.
Nine zonal Pelargoniums	Royal Polytechnic barometer, given by Messrs. J. Davis & Co.
Four dishes of Peas	£6 10s. 6d. in four prizes, given by Messrs. Sutton & Sons, Reading.
Two sorts of Melons and two sorts of Cucumbers	£12 in five prizes, given by Messrs. Sutton.
	June 23 and 29.
Group of plants arranged for effect on a space of 400 superficial ft., by amateurs and gardeners only	£65 in three prizes, given by the General Horticultural Company.
Ditto for market growers only	£65 in three prizes, given by the General Horticultural Company.
Twelve dishes of vegetables	£17 6s. 6d. in six prizes, given by Messrs. Sutton & Sons, Stourbridge.
Six dishes of vegetables	£6 6s. in three prizes, given by Messrs. Webb & Sons, Covent Garden.
Four sorts of Peas, one dish of each	£11 10s. 6d. in five prizes, given by Messrs. Carter & Co., High Holborn.
The best packet three boxes of fruit	£10 10s. in three prizes, given by Messrs. Webb & Sons, Covent Garden.
Six fruits of Lord Napier, Nec-tarine	£2 2s. in one prize, given by Messrs. Rivers & Sons, Sawbridgeworth.
	July 12.
Best collection of Calochortis	£3 7s. in two prizes, given by Messrs. Hooper & Co., Covent Garden.
	August 9.
Tomatoes and Melons (special kinds)	£3 3s. in three prizes, given by Messrs. Hooper & Co., Covent Garden.
	August 23.
Collection of shoots or twigs of twenty-four kinds of hardy trees and shrubs	£3 in two prizes, given by Messrs. Ewing & Co., Norwich.
	October 11.
Three plants of Pearl Tuberoses	31s. 6d. in two prizes, given by Messrs. Hooper & Co.
Three dishes of Potatoes (special kinds)	£3 3s. in two prizes, given by Messrs. Hooper & Co.
	November 8.
Twelve dishes of vegetables	£12 1s. 6d. in five prizes, given by Messrs. Sutton & Sons.
Onions and Potatoes (special sorts)	£13 10s. in twenty prizes, given by Messrs. Sutton & Sons.
	December 13.
Twelve dishes of vegetables	£11 7s. 6d. in six prizes, given by Messrs. Carter

Winter Blossoms.—The following plants were in bloom in the open garden at the top of the Warberry Hill, on December 30, 1880, viz.: *Laurustinus*, Winter Jasmine (*Jasminum nudiflorum*), *Periwinkle*, *Garrya elliptica*, Purple Veronica, Christmas Rose, White Violets, *Arbutus Unedo*, *Gentianella*, Rosemary, *Arabis alpina*, *Pittosporum Tobira*, Wallflower, Fuchsias, Double Pyrethrum, *Escallonia macrantha*, Forget-me-not, *Berberis Darwini*, *Daphne* (evening-scented), *Coronilla glauca*, Yellow Alyssum, Marigold, Chrysanthemums, Virginian Stock, Strawberry, Rue, *Doronicum*, coloured Primroses, and Red Valerian. Of these, the first eighteen had their blossoms in fine condition, and some of them were blooming luxuriantly. Among the rest, the *Escallonia macrantha*, the Marigold, the *Doronicum*, and the Chrysanthemums had evidently seen their best days; while others, like the *Daphne*, were still reserving their forces to greet the opening year. *Anemone coronaria* and a standard Rose had well-developed flower-buds. It should be remembered in regard to the foregoing list that the garden in question is 400 ft. above the sea level, that no special horticultural attention has recently been given it, and that the transient cold of last October was rather exceptionally unkind to blossoms.—T. R. R. S., in *South Devon Journal*.

HARDY FERNS.

UNDER this heading I purpose making some remarks on hardy Fern culture, taking it in its wider sense, in contradistinction to the restricted uses to which Ferns have generally hitherto been put as occupants of the artificial Fernery only. I wish, in short, to call attention to the, as I think, undoubted fact that very much more may be done with Ferns in the way of embellishing ordinary garden scenery than has as yet been attempted. Ferns, although their admirers are happily numerous, have been and are still considered by the majority of cultivators merely as plants suitable for planting in and about artificially made mounds of earth, consisting in many cases of the worst possible description of soil, covered with what is called rockwork, and often placed in incongruous positions, where their presence is certainly the reverse of ornamental. Surely, therefore, such exquisitely beautiful plants as Ferns deserve a better fate; under such circumstances all the charm of contrast which they present when planted in combination with fine-leaved and flowering plants is lost. Such an arrangement is not a natural one, although sanctioned by fashion. People are now, however, beginning to recognise the fact that a garden filled with hardy ornamental plants, properly arranged and tended, is much more interesting than one filled with exotics, however gay may be their colours; and, therefore, in the gardens of the future hardy Ferns here and there, in groups and colonies, may be expected to play an important part, associated with other ornamental hardy garden plants. Therefore, in order that the most effective kinds to plant may be selected, I will proceed to give an alphabetical list of them, with hints as to position and culture.

Adiantums.—The different varieties of this lovely genus of Ferns that may be called fairly hardy in this country are but few in number, and, with the exception of the North American variety, *A. pedatum* (which will thrive in almost any position, provided it has suitable soil), they are difficult to cultivate successfully except in very favourable localities. The soil best adapted for their growth is rough fibry peat, mixed rather liberally with sand and lumps of broken stone or brick. *A. pedatum*, the fine American kind just named, might be usefully employed in a general way for forming a carpet or edging for other shade-loving plants, where its smooth, shining black-stemmed fronds could peep up through and around its associates. The fronds of this Fern rise from a creeping rhizome, therefore care must be taken to plant it in positions in which it is likely to be little disturbed. Like all the *Adiantums*, it is fond of moisture while growing, care being taken, however, to always provide plenty of drainage; stagnant moisture around its roots would speedily prove fatal. With *A. Capillus-veneris*, the British Maiden-hair Fern, we are all acquainted. It succeeds best in a very sheltered, warm position, as, for instance, in a little nook at the foot of a shady wall, associated with some equally moisture-loving little hardy plants. In such a position it ought to thrive well, and so placed, it would be easy and advisable to protect it with some kind of portable covering during severe winters. Its native habitat is amongst the sheltered rocks of Cornwall, Devon, and Wales, and in various parts of Ireland; therefore some idea may be formed of the sort of climate in which it luxuriates. This Fern has a great predilection for damp, warm walls, which it speedily covers with a carpet of beautiful verdure. There are several varieties or forms of this Maiden-hair, amongst which *A. Capillus-veneris incisum* is a distinct kind, found in Ireland. In this the pinnules are much more divided than in the type. *A. Capillus-veneris rotundatum*, found in the Isle of Man, is also a beautiful variety, though very variable. The fronds are narrower and rounder than in the type. *A. Capillus-veneris Footi*, a large form, which sometimes grows upwards of 1 ft. in height, has fronds beautifully cut and divided. Its native habitat is said to be Ireland, but I am not acquainted with the exact locality in which it is found. These varieties are all well worth attention in conjunction with the original species, and all require very similar treatment. All the *Adiantums* are beautiful in a cut state mixed with flowers, and are amongst the most useful of all Ferns for that purpose.

Allosorus crispus, the Parsley Fern, is one of the most beautiful of the genus to which it belongs. It is evergreen, and should be planted freely in every alpine or rock garden, its elegant Parsley-like foliage rendering it peculiarly fitted for association with the many floral gems in the hardy plant way which we now possess. The soil in which this Fern most delights is a mixture of good loam, peat, and sand, with the addition of some lumps of broken stone or brick. It should occupy a rather shady position in the rock garden, and be given due attention until it becomes well established, when it will prove one of the most delightful of rock plants. It must, however, be guarded from slugs, to the depredations of which it is very liable. The fronds of this Fern are very suitable in connection with flowers for small bouquets, being very persistent. It is found principally in the west of England and in some parts of Scotland.

Aspleniums.—Amongst hardy evergreen Ferns few are more useful or diversified than these; the fine dark green colour of most of the varieties and their free-growing character claim for them a full share of attention from all lovers of hardy plants. The soil best suited for them in a general way is a well drained mixture of peat, sand, and loam, just the sort of material in which the finer kinds of flowering shrubs, such as *Kalmias*, *Andromedas*, *Rhododendrons*, *Azaleas*, &c., would thrive to perfection, and with which *Aspleniums* might be advantageously associated. *A. Adiantum nigrum* (the Black Spleenwort) would be especially interesting amongst hardy *Azaleas*, because these lose their foliage in winter, when the value of the Spleenwort would become apparent, carpeting, as it would, the surface of the soil with verdure. The shade, too, which the *Azaleas* would afford in summer, if not planted too thickly, would just suit this Spleenwort, as it is generally found in a wild state fringing copses or on hedge banks, where it gets just a little protection from the scorching rays of a summer's sun. It will, however, bear a considerable amount of bad treatment with comparative impunity, adapting itself readily to almost any position, and, moreover, it produces fronds that in a cut state rank amongst the most beautiful and lasting of all Ferns. There are several distinct forms of this *Asplenium*, the most remarkable being perhaps *A. Adiantum nigrum grandiceps*, a noble kind in every way, and *A. Adiantum nigrum microdon*, both valuable and useful kinds. By the way, we may here note that there is a variegated form of *A. Adiantum nigrum* which is desirable and thrives well in some localities. *Asplenium fontanum* is a lovely Fern, but so rare, that to call attention to its value for ordinary garden decoration would be useless; nevertheless, those who make special collections should add this fine variety, if possible. *Asplenium marinum* is, as is well known, one of the most beautiful of all evergreen Ferns, but, unfortunately, it is far from being generally hardy; still it will succeed under conditions similar to those recommended in the case of the British Maiden-hair (*A. Capillus-veneris*). Its beautiful deep green, persistent fronds and dark brown sori always attract attention. In a natural state it grows rather freely on the Irish coast, south-west of England, and in some parts of Wales, in Scotland, and in the Channel Islands. *A. marinum imbricatum* is a particularly fine variety; having beautifully fringed and crisped fronds. Another lovely *Asplenium* is *A. germanicum* (*alternifolium*), the alternate-leaved Spleenwort, a dwarf-growing, rare kind, and one admirably adapted for a shady spot in the alpine garden. It is perfectly hardy, and, although somewhat difficult to grow, is worthy of any care that may be bestowed upon it. Another fine variety, and one which is very distinct in appearance, is *A. g. acutidentatum*. It produces elegant little fronds, about 2 in. or 3 in. in length, which have a most beautiful appearance when associated with flowering plants of a suitable kind. These are found wild in some parts of the north of England, and in Scotland and Wales, but, as already mentioned, they are rare. *A. lanceolatum*, the lance-shaped Spleenwort, is a kind of great excellence; its fronds are deep shining green in hue, and are furnished with unusually conspicuous and numerous brown sori. This species associates well with choice dwarf shrubs or evergreen herbaceous plants in a rather warm position, where it would receive a little shade in summer and protection from drying winds. If such a position could be afforded it, it would certainly be one of the most beautiful occupants of the garden. A distinct and rather scarce variety of this Spleenwort is *A. lanceolatum microdon*, a kind well adapted for association with some of the larger alpine plants. These *Aspleniums* are found in a wild state, principally in the west of England, the Channel Islands, and, it is said, in Ireland.

That highly ornamental and useful *Asplenium*, *A. Trichomanes*, the well-known common Maiden-hair Spleenwort, now claims attention. When in a thriving condition this makes one of the most beautiful of edging plants, and one, moreover, that will stand a good deal of sunshine and exposure with impunity. Like all the Spleenworts, it requires good, free, well-drained soil in which to grow, and, given this essential and ordinary care, success is pretty certain. A few pieces of stone placed on the soil around the roots prevents to a certain extent the evil effects that excessive evaporation has on all Ferns. The stones might be partly buried in the soil, and the portions of them left above it would be covered by the Ferns themselves; therefore no unsightly appearance would be presented. This Fern might have a little nook devoted to it where it could be planted in association with such things as *Snowdrops*, *Anemones*, spring and autumn-flowered *Crocuses*, *Narcissi*, &c. These lovely hardy flowers peeping forth from a carpet of this Spleenwort would be objects of interest. Amongst varieties of this Fern may be noted *A. Trichomanes cristatum*, a crested form as its name implies, and one of much beauty; *A. Trichomanes multifidum*, thoroughly distinct and one of the most beautiful of all the Spleenworts; and *A. Trichomanes incisum*, an excellent variety, but very scarce.

H. BAILEY.

NOTES AND READINGS.

I SEE it stated that it may interest Chrysanthemum growers to know that it takes an ordinary cultivator seven years, a big slice of one's life, to understand Chrysanthemum culture sufficiently in order to select the "proper bud" upon which the flowers succeed. It will doubtless interest many more to know that they can have a splendid display of Chrysanthemum flowers such as will satisfy either a pure or extravagant taste in as many months as the cultivator takes years. The Chrysanthemum has no "peculiarities or characteristics" that require so much study. The author of the seven years' tribulation system is one of those who believes in big flowers. It is really an extraordinary psychological phenomenon this mania for mere size of bloom.

One can understand the veneration a farmer entertains for a large Mangold or a Swede, &c., or the admiration that is excited in a gardener's mind by the sight of a large bunch of Grapes or a fine Peach, because size in such cases means a tangible degree of excellence, but with a man who devotes seven years of his life to finding out how to produce blooms of Chrysanthemums, no matter at what sacrifice, that shall simply be bigger than any that has been produced before, it is difficult to say whether he should be pitied or laughed at. The big-flower man "never is but always to be blest" with flowers that shall be bigger still. Fair size is no doubt a desirable quality in flowers of some kinds and for some purposes, but there is a limit at which all one's wants and desires are fairly satisfied, and beyond which fantastical tastes should not be encouraged.

Granted that the florist's ideas of what constitutes a perfect flower are correct, and that these are realised along with suitable and convenient size of bloom in the subject cultivated, can the most enthusiastic cultivator say in what way improvement is added by a mere increase of bulk? That this quality has some vague charm in his eyes there cannot be any doubt, for the biggest Dahlias, biggest Roses, biggest Chrysanthemums, biggest everything invariably win the prize. There is absolutely no limit to the cultivator's hopes and desires in this direction, and we cannot doubt but that if any one was to produce a Chrysanthemum, for example, large enough to fill a peck measure it would only stimulate others to endeavour to excel it.

The year 1881 will be remembered as the year in which "——'s Cucumber" was introduced—just as people remember the year of the comet with the long tail, and other remarkable events. ——'s Cucumber is between 10 ft. and 12 ft. long, and proportionately thick. We gather these particulars from the published catalogue "from a photograph taken August, 1880." A workman—a sizable man apparently, 5 ft. 8 in. or 5 ft. 10 in. may be—is photographed in alongside of the Cucumbers as they grow in the house, and the Cucumbers are about twice as long as the man, and thick. We have great pleasure in introducing novelties of this kind, and mean to help them all we can for the future.

We have nothing in store but praise for honest catalogues and honest descriptions of new productions, and will be glad to give them publicity, but we have got our compass legs and the scale astride some new Peas, Potatoes, Mangolds, and other marvels, and if their vendors do not mind, we shall print our observations thereon. It is said the horticultural papers are tongue-tied on such matters, but we shall see. In these days of horticultural novelties, gardeners of all degrees scan the advertising pages of THE GARDEN and other papers, but they are not readily deceived by exaggerated descriptions nor overdrawn illustrations. Those members of the trade who have to "bush their wines" are pretty well known both to gardeners and the trade, but they will be nothing the worse for being made better known.

Under the head of "New Inventions," the *Chronicle*, we observe, figures and describes the "perfect watering-pot"—perfection consisting in the pot having a long spout. We have been trying to remember when we were not familiar with such a utensil, but have failed. One of the earliest things that dawns upon the apprentice mind is, that for many purposes he requires a pot with a long spout; next he finds it better that the said spout should be movable, so that it can be used only when wanted, thus making one pot serve two purposes, instead of having two pots—one with a short

spout and another with a long one. The "Experienced Amateur" of the *Chronicle* has reached the first stage of watering-pot experience, but not the second apparently. If he will be persuaded to adopt the movable spout, and also to turn down the nozzle of the extremity of the same, so as to break the straight rush of the water upon the surface of the soil, he will then have an "improved" perfect watering-pot—the exact counterpart of that daily in use in mostly all gardens. The suggestion that gardeners should go to Birmingham for an article that has hitherto been manufactured by the local plumber may be left to take care of itself.

The London *Telegraph* makes a suggestion with regard to table-decoration. It states that artificial flowers and plants are now such perfect imitations of the natural ones, even to their fragrance, that a gardener might be excused taking the one for the other; and it suggests that the artificial ones be used for table-decoration and such purposes. On the score of economy of plants and otherwise, the plan, it is said, has much to recommend it; but how any human being can take enough interest in artificial plants to pay high prices for them I cannot see. The hotels and other places where these green zinc and other horrors in this way are to be seen would be much better without them, especially in a country where a very large bunch of Wallflowers may be bought for fourpence.

Much interest has apparently been excited by these large Italian bouquets. We, and probably many others, would no doubt like to know why either Italian or Covent Garden bouquets are made as large as birch brooms, necessitating their being carried about in band-boxes in charge of footmen and porters. Why are Covent Garden bouquets so large? That they are too large for any purpose ninety-nine ladies out of every hundred will tell you. They are huge monstrosities, and we have never been able to fathom the mystery of their size, unless it be that it is given to make purchasers believe they are getting good bulk for their money. To see a lady raise a nosegay of the diameter of a Drumhead Cabbage to her face, exposing its hideous posterior nakedness, absolutely shocks one's sense of propriety. Such bouquets are the invention of the professed "bouquetist," and are not at all what those who buy them prefer. Ladies prefer small and neat bouquets, and never, when they can please themselves, have large ones, and it is quite time there was a reformation among the Cauliflower-like productions of Covent Garden.

Some observations we have been reading regarding exhibitions suggest a word or two on the subject of "prize cups." It is not sufficiently well known, we fear, that sometimes imposition is practised upon exhibitors at provincial shows by the donors of such prizes. For example, a cup of the nominal value of £5 or £10 is perhaps offered for a prize, but the probability is that the cup, as a "cup," is not worth a quarter of that amount, and worthless intrinsically, as the winner of such "Brammagem ware" may satisfy himself of by having his prize valued. A friend of ours took this course once. A professed patron of horticulture for some four years in succession presented "a cup, value £8.8s.," as the schedule put it, for the best collection of eight sorts of fruit at a well-known horticultural show in Yorkshire, the society giving a prize of similar value, but in money, for the best collection of plants. The fruit prize was won by several well-known gardeners, who could certify to the truth of what we state, and by one of the number two years in succession. Thinking they were becoming rather an encumbrance to him (they stood about 15 in. high), he took it into his head to have them valued by more than one competent silversmith, who all certified that the cup was certainly not worth much more than a quarter of its stated value. On this the winner wrote to the donor, asking him to relieve him of one of the cups and give him the money instead, but this the donor declined to do. The gardener in disgust, therefore, disposed of both his sham prizes for the highest sum he could get for them, which was a trifle over £4, or about one quarter of the fictitious value put upon them by the giver, to whom they cost even less. It is so far satisfactory to state, however, that a threat from the gardener to expose the imposition, if it was repeated, in the horticultural papers, put a stop to the cup business, and a money prize has since been substituted. Gardeners value a cup prize as well as any other when it represents its reputed value, but many, we are assured on good authority, do not do this.

PEREGRINE.

TREES, SHRUBS, AND WOODLANDS.

THE LOMBARDY POPLAR.

I AM glad to learn that you are about to give a picture of the Lombardy Poplar, and, if you can spare me a little space in the columns of *THE GARDEN*, I should like to have your permission to say a few words in behalf of the specialities of this charming tree. In speaking thus of the Lombardy Poplar I do not forget the common prejudice not wholly groundless, so generally unfavourable to the Poplar. The genus is, of course, a large one, containing many kinds, all more or less differing from each other, and possessing qualities in some cases of no inconsiderable value when properly employed. Flooring boards, for instance, very tough and lasting, are made from some of the kinds, and are said to be



The Lombardy Poplar in the Landscape

all but fire-proof—naturally therefore very unsatisfactory fire-wood.

It is not, however, my present purpose to enlarge upon the merits or demerits of the Poplar trees as a class, though it is true that some of the kinds, such as the Black Italian, the Abele, and others, are the most rapid growing of all our deciduous trees, and on this account they are often found valuable as screens among buildings in the suburbs of large towns, and as boundary shelter for young plantations in exposed situations. It cannot be said that longevity is a quality that belongs to the Poplar as a family; it is rather distinguished for rapid growth and early decay. In its general aspect in the landscape it is justly held in very low esteem, though in maturity and in what may be called old age some of the kinds, such as *Populus tremula*, though never very picturesque, are always beautiful. Overhanging a pond not far from the

celebrated hostelry known as the "Plough" on Clapham Common, where many years ago I had frequent occasion to pass, stood one of the last named Poplars, *P. tremula*; this particular tree had reached a period somewhat beyond its highest state of maturity, and growing as in this case on the open common, with its somewhat pendent form overhanging the water, it was at the period in question as a single tree an object of real beauty. Though this is one of the most ornamental, perhaps the only one, of the genus with much pretension to the beautiful, it is nevertheless all but wholly wanting in that dignity and grandeur of aspect so justly claimed for the Lombardy. This is especially the case when advantageously placed and surrounded with suitable adjuncts. Unhappily in matters of this kind no written description is possible by which to convey to the general reader with any clearness and force what these adjuncts require to be. Neverthe-

less, let it be assumed, for example, that three, four, five, seven, or indeed any number of Lombardy Poplars form a group in the general landscape, it will be readily understood that the effect of such a group will be greatly influenced by the nature of the surrounding objects; but at any rate whether as a group or a single tree, when in full maturity and vigorous health, the stately grandeur of the tree itself will always be an object of attraction. In the general landscape the Lombardy is a delicate, but most effective instrument to work with, easily capable of misapplication, but when rightly employed a most valuable tree. As already remarked, it is difficult to convey anything like a clear notion of what is a right and what is a wrong application of its use. Without, however, venturing upon a detailed discussion of the principles of art, it will

be sufficient to take again, for example, some feature of the ordinary landscape, such as a group of trees, whether large or small, near or distant, is immaterial, but consisting mainly of Oak, Elm, and the like, forming a somewhat dull and heavy mass. Appealing, therefore, once more to the exercise of the imagination, and assuming that it is desirable to make some addition to this rather monotonous group, and that the addition shall consist of Lombardy Poplars, the question naturally arises as to where these majestic and towering Lombardies are to be placed in connection with this group of trees.

The answer ought to be, by all means place them either towards one side of the group or the other, and, depending on the number to be used, let them be so arranged that some stand close together and others at 5 ft., 10 ft., or 20 ft. apart. It may be right to say that the preceding remarks

are made with the view of drawing attention to and with the hope of correcting a somewhat absurd habit not unusual with those who are occasionally entrusted with the management of work of this kind, viz., their love of uniformity and their terror of doing anything which they call "lopsided," leaving them no alternative but to place the tall, towering Lombardies in the middle of the group, and this is done in order, as they assert, to form a centre. It need hardly be said the result of this proceeding is to produce an artificial cone, and of course a thing discordant with all the natural features around. Admirable as the Lombardy Poplar is in many of the positions in which it is employed, it is sometimes made fatally mischievous in forming long and straight sharp lines across the natural scenery. In some of its more happy positions it is occasionally met with growing on the banks of streams at the end of a bridge with a long horizontal parapet; placed in this and in similar situations, it is often productive of the most charming and picturesque effects.

It may have been noticed when looking abroad on the general landscape, in undulating districts and under particular conditions of the atmosphere, how extremely effective a group of this tree becomes when seen on the horizon occupying the apex of some distant knoll. The Lombardy may frequently, and with very good effect, be planted close to buildings, such as the entrance front of a mansion, and especially at the point of junction between the main front and office wing—that is, where such an arrangement exists. This can often be done with marked success, particularly when the horizontal lines of the buildings are prominent and considerably extended. Owing to its compact, upright habit, the Lombardy is perhaps the only tree that can be grown with impunity close to buildings. As an aid in this way to the picturesque effect of buildings, whether they be large or small, this capital tree is highly effective. As time goes on we shall all become more artistic, and derive increasingly more and more enjoyment from the knowledge and study of whatever is beautiful. The Lombardy Poplar as a consequence of all this will have its own share of growing patronage, and will doubtless be much more extensively employed, not only in the neighbourhood of buildings, but also throughout the country as a valuable help to the picturesque in the common landscape. ROBERT MARNOCK.

GOLDEN EUONYMUSES.

Few hardy shrubs are better suited for pot culture than the many pretty varieties of *Euonymus*. Naturally assuming a compact, dense habit, they need no training or stopping of any kind to bring them to the desired shape. All that one has to do is to give them the advantage of liberal culture until they become large enough to form good decorative subjects, when the roots are crammed into 6-in. or 8-in. pots. Some of the golden variegated kinds scarcely yield to any choice warm-house plant in beauty and richness of colouring, and would, did they demand constant attention and much cultural skill, be highly valued for decorative purposes. As it is, one seldom sees them at their best, for, except in a few favoured localities, they generally become so much injured in the winter as to lose the greater portion of their beauty. These golden variegated *Euonymuses* belong to a tribe of plants which, although commonly termed hardy, can scarcely be considered so in the true sense of the word, and are very often extremely disappointing when relied upon to create a permanent effect in the open air. Oftener than not, a plant which grows vigorously in the open ground reverts to the type, and loses that bright and pleasing golden tint which one so much admires when this variegated shrub finds itself in the enjoyment of conditions just suitable to its welfare. It is more than probable that a great portion of the readers of *THE GARDEN* have never seen the golden *Euonymus* in its true form, for there is an immense difference between a well coloured specimen and such as are endeavouring, as it were, to run back to the normal condition of the plant. The golden *Euonymus* delights in a warm situation

well exposed to the sun, and a good well-drained but not too rich soil. When thus placed, not only do the leaves take on a fine golden tint, but even the stem, from the ground upwards, becomes highly coloured. In this condition a large specimen is extremely ornamental, and its pleasing and cheering effect during the winter months cannot be too highly estimated. Unfortunately, it is often somewhat difficult to combine all the requisite conditions in the open air, as, even when soil and other conditions of growth are of the most favourable character, winter's cruel blast comes to undo in one short week the labours of several years. There is, however, no difficulty, and results are in every way satisfactory, when pot culture is resorted to, as during the summer months the plants would get the advantage of a good exposure to sun and air, and would be sheltered against cutting winds and heavy falls of snow, really all the protection needful. For the embellishment of corridors, entrance halls, cool or cold houses, the variegated *Euonymuses* are extremely useful. In company with such subjects as *Laurustinus*, berried *Aucubas*, *Skimmia japonica*, variegated Bamboos, &c., they would help to render many such places cheerful and enjoyable throughout the dreary winter months.

J. CORNHILL.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Euonymuses on Walls.—A worthy rival to the variegated Ivy for covering walls is *Euonymus radicans variegatus*, for although the better of a little support just at first, it soon takes care of itself and clings to the wall like Ivy. This *Euonymus* will also cover a space more quickly than variegated Ivy, that is to say, if equal-sized plants of both be planted, as when once established it will throw out strong shoots several feet long in one season. The golden variety of *E. japonicus* may also be used for the same purpose, but it does not emit roots like the other; it, however, forms a pleasing contrast with most other plants so employed, and is always bright and cheerful winter and summer, especially if a little attention be paid to removing any green shoots as they appear. If this be not done they will soon take the lead and outgrow the variegated part. While on the subject of variegated *Euonymuses*, I may mention that I have noticed in many cases that plants cut back by the frost last winter, which until then had scarcely a green leaf on them, are now, when grown again from the old wood, nearly all green.—ALPHA.

Ornamental Hedgerows.—As a rule hedges are not intended to be ornamental, but simply useful as a division or boundary; but in many cases a hedge is necessary in very conspicuous positions, and even in mid-winter it is quite possible to have one, that will not only be useful as regards fulfilling all that is required of it, but also ornamental. I lately saw a hedge surrounding a garden that was really a pretty object in midwinter, for it was aglow with the blossoms of *Jasminum nudiflorum* and quite studded with the bright berries of *Cotoneasters* and *Pyracanthas*, that had become firmly entwined in the branches of the white Thorn, of which the hedge had originally been composed; but, from having become thin, was planted up with many kinds of flowering shrubs and creepers that kept up a succession of either bloom or berries during the entire year; especially suitable for this purpose are the common kind of *Roses* (such as the China) that flower for months in succession. Briers, of various sorts, so sweet in foliage, bloom, and bud, would also prove useful; in fact, an endless variety of material will suggest itself to anyone seeking to make hedges ornamental, and by the employment of creepers or trailing plants, any unsightly fence may be made a really beautiful object with but little expense or attention. The case just cited was, I believe, one of those chance combinations that we frequently find yielding better results than the most studied effects.—Field.

Skimmias.—Whether in the shape of berried or flowering plants, *Skimmias* are certainly very beautiful, and amongst them by far the best is *S. japonica*, now largely grown in many places for winter decoration when in fruit. The foliage of this plant is often of a yellowish hue, owing to its being exposed to the sun, as when in a shady position it assumes that dark green so characteristic of robust health. Another pretty plant just now in a flowering state is *S. fragrans*, every shoot of which terminates in a spike of flowers white inside and reddish out, reminding one before opening somewhat of the *Laurustinus*. Other kinds are *S. oblata*—the fruit of which is even larger than that of *S. japonica*—and its variegated variety, *S. Laureola*, a sort that bears a great resemblance to the Spurge Laurel (*Daphne Laureola*). Although all are shade-loving plants, by far the most susceptible to sunshine is *S. japonica*.—ALPHA.

Eurybia ramulosa, of which an illustration is given in the last number of *THE GARDEN*, belongs to a rather extensive genus.

It is a free-growing, soft-wooded shrub, which here has not exceeded 5 ft. in height. Our specimen is planted against a sunny wall and in rather a dry spot, a condition, I consider, essential to the well doing of this and similar plants. It seems to be about equal in hardiness to *Ozothamnus rosmarinifolius*, both being killed in the winter of 1879-80. So far this winter the latter has suffered most; in fact, in the matter of comparative hardiness I may mention that the severe frosts of October last killed down to the ground a large number of *Wistarias* and many other things growing close to this plant, while it being then in full bloom was not in the least injured. It is essentially a late-blooming subject, commencing in September and continuing on through October, November, and December, and in fact now, January 9, there are still some remains of flowers. Your figure very accurately shows its free-blooming habit, but not the half pendulous manner which the branches assume. There are many gardens in which this plant would surely prove quite hardy; in others it would be well worth growing as a most useful and charming late-flowering plant for a cold house.—T. SMITH, *Neury*.

THE INDIGOFERAS.

THESE constitute a large genus of plants freely distributed throughout the warmer parts of the Old World, but a few are



Indigofera tinctoria.

found in the Western Hemisphere. The greater part require indoor cultivation, but there are a few that will live out of doors on walls in most places during winter, and when in flower are so showy and graceful as to well repay that accommodation. The hardiest kinds are *I. dosua* and *floribunda*, both natives of Nepal, and about the end of May when covered with racemes of bright rose-coloured Pea-shaped flowers are very pleasing objects. They succeed best planted in a sunny aspect, as the wood then gets thoroughly ripened. There is also a white-flowered variety of *I. dosua*, which affords a pleasing contrast with the type. The kind here represented, *I. tinctoria*, is of great economic interest, being one of the principal kinds from which the well-known indigo dye is prepared, but it is too tender for outdoor culture.

ALPHA.

fragrans, which in places where it is at all sheltered is now in full bloom. This fine deciduous wall shrub is quite hardy, but the blossoms are somewhat liable to be injured by frost unless slightly protected. Another plant under similar conditions just now opening its sweet-scented white flowers is *Lonicera fragrantissima*, or *Standishi*, a semi-deciduous Honeysuckle of medium growth, and, although a little later in coming into bloom, a fit companion to the *Chimonanthus*.—ALPHA.

SCHOOL GARDENING.

I WAS pleased to see some time ago the subject of teaching children in schools the rudiments of flower, fruit, and vegetable culture, advocated in *THE GARDEN*. What is wanted is not dry book lore, but actual work carried out, so that the learners might see the result of their labour and be encouraged thereby to devote their spare time to such pursuits. According to existing arrangements, the giving of such lessons in schools is not practicable, but they might be given easily and with profit in gardens attached to poorhouses, reformatories, and asylums, to which large gardens are attached for supplying the establishment with vegetables and hardy fruits. Even in ordinary schools, however, interesting lectures might be given by amateur horticulturists who are always ready to forward any good work. The main object should be to give the pupil a taste for gardening as a sort of amusement, so that in after years he might turn his knowledge to good account by growing good wholesome fruit and vegetables for himself or family, or flowers to make his cottage home more cheerful. It is a lamentable fact that in a country so admirably adapted for vegetable culture as England is, one half the population never get anything beyond Potatoes or Cabbage, and even possessors of good gardens have but little knowledge as to how good salads are to be grown. Cottagers, as a rule, plod on year after year, growing what their parents grew; they seldom get a word of advice in a plain, practical manner as to what is good or what is bad in the way of either plants, vegetables, or fruit. Even grown up people might be better instructed than they are in matters connected with gardening if proper means were taken to do so. It is surprising how soon working men take up any really practicable idea; when a little enlightened, one soon finds them inquiring for seeds of better or more productive kinds of Potatoes, Cabbages, and other crops than they have hitherto grown, and giving a trial to such things as have hitherto only been grown in gentlemen's gardens from want of their merits being made known to them; and at the principal autumn shows one clearly sees that the lessons given them have not been thrown away, as from the smallest cottage gardens it is surprising what fine vegetables are produced under good culture, and even hardy fruits in time become improved, principally through good specimens being shown at such meetings for comparison with older kinds, for even in the order of ripening a few days may make all the difference as regards profit, especially in Plums, in which the price may drop one-third in a few days. That valuable bush fruit the Black Currant has been greatly improved of late, and a cottager may as well grow good productive kinds as worthless ones, for they occupy the same space. Monthly meetings, at which small prizes are given for vegetables, or fruits, or flowers in season, have a good effect, especially when the merits of the different things shown are explained, and the most successful teachers are those who speak, as it were, from the same level, or as working men to working men. Every endeavour should be made to get the exhibitor to describe the mode of culture found by him to yield the best results, and after all have given their short accounts, comments should be made on any difference of results that may require explanation, and the result of experience given as to what is best for the cottager to grow and what to avoid. A library for the use of working men should be established and supported by voluntary contributions, and should there be a lack of subjects for discussion exhibited, the evening should be filled up with readings from some good work on horticulture; I think it would require no great amount of ingenuity to make such meetings attractive and also instructive.

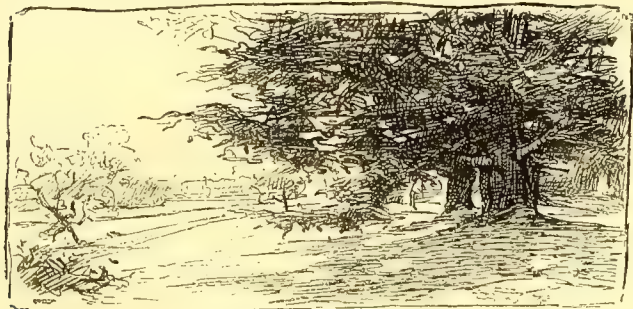
JAMES GROOM.

Anopterus glandulosus.—Although pronounced by Lindley, some thirty years ago, to be only third-rate, this is really a handsome shrub, and one which, under good culture, is highly ornamental and particularly suitable for adorning a cool conservatory in midwinter, which is its natural flowering season. Under cultivation it grows from 2 ft. to 3 ft. high, and has large deep green leaves on stout branches, which are terminated by several erect racemes of pure white blossoms. It is a native of Van Diemen's Land, and though not perfectly hardy in this country generally, would doubtless succeed well in favourable localities in the south-west. Some small plants of it may now be seen in the conservatory (No. 4) at Kew.—G.

Two Sweet-scented Shrubs.—Although not showy, yet very attractive on account of its delicious perfume, is *Chimonanthus*

AN ARTIST'S NOTES.

THE view which I found in the gardens at Greenlands is just what I wanted—the big Cedars in the foreground, and the



Cedars at Greenlands.

river winding away to Henley. There are other good views, but this seems most characteristic of the place. The gardens are kept in admirable order, and there are several interesting points about them. A very fine old Walnut tree is not only grand in itself, but happens to show an ingenious way of putting creepers into the boughs without interfering with the roots. It will be seen by the annexed sketch that the two



Old Walnut (Greenlands) with Ivy-covered Supports.

supports are covered with Ivy. I should like to see a fine Wistaria going up the same way and twining about among the branches. A rockwork is generally a dreadful affair, but here is one well arranged, and where the plants look happy; for instance, this cluster of Japanese Primrose quite filled up



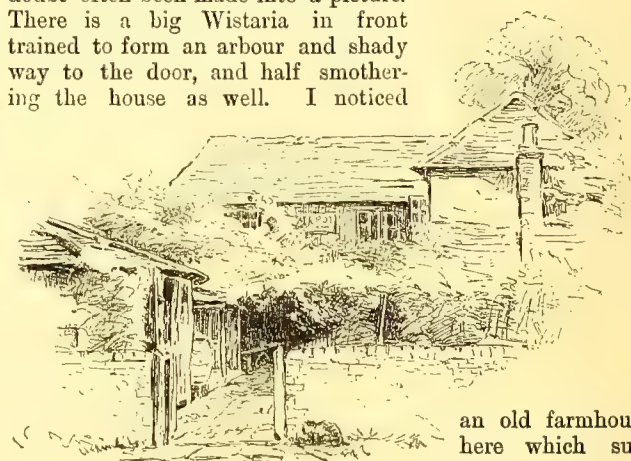
Rich growth of Japan Primrose in Rock Garden.

a crevice between two stones with leaves as broad as one's hand. How long, I wonder, will people fill their Ferneries with hideous monstrosities with frilled edges and clubbed ends, which completely destroy the lovely form of the Fern leaf? How much better it would have been, for instance, if the man who first observed some such unfortunate deformity as this had mercifully stuck his spade into it instead of propa-



Depauperated Fern.

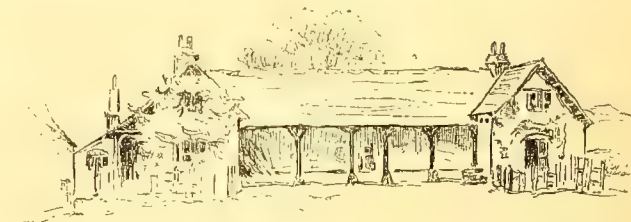
gating it and dignifying it with the name of *Athyrium Filix foemina* Frizelli. The little inn at which I am staying, the "Flower Pot," is much frequented by artists, and has no doubt often been made into a picture. There is a big Wistaria in front trained to form an arbour and shady way to the door, and half smothering the house as well. I noticed



The "Flower Pot" Inn, Aston.

an old farmhouse here which suggests a good idea for a pair of cot-

tages—two gable ends connected by a covered courtyard; the doors might be made to open into this, and it would thus



Old Farm, Aston.

serve as a porch as well as a place for keeping wood and tools, or for a working place in wet weather.

Fawley Court is the next estate to Greenlands, and it is well worth seeing. The ground in front of the house is flat, but, divided from this by the high road, is a chalk hill which has been very well laid out with groups of Beeches and shrubs, and seems from the house to be a continuation of the park. There are some very fine trees both in the park and in the gardens; some groups of old Elms which make the simple square Georgian house, with its fine lawn sweeping right up to the walls, look quite imposing from the river-side; some Limes, which the gardener tells me look green in winter from

the amount of Mistletoe growing on their branches, and the Planes, which I went especially to see. These are remarkably large in girth, and the stems are unusual in character. This one is 18 ft. 8 in. in circumference at 3 ft. from the ground.



Plane Tree at Fawley Court.

They have not the grand spreading habit of our London Plane trees. The flower garden is at some distance from the house, with Grass coming up to the beds and going away beyond them under a background of dark trees; the way it is placed and its surroundings are delightful. Among the usual mass of bedding stuff, "flat, stale, and unprofitable," and in pleasant relief to the forlorn spectacle it presents when its two months of colour are over, was a bed of tall *Salvia*, spotted over with intense blue blossoms—the long, straggling spikes with one or two flowers at the top looked so quaint and delicate against the mass of dark green behind them. I much admired a ribbon border in the kitchen garden; two splendid long ranks of green curled *Endive*, with a line of the white curled between them; the harmony of the two greens was very pleasant, none the less so because of the suggestion of salad for the winter. There is a good deciduous *Cypress* in the flower garden, and a Fern-leaved *Beech*, which may be a very fine specimen, but pyramidal and uninteresting, and not at all tempting to draw. In fifty years' time, if it has not died or reverted to its old form, which it seems to be fast doing, it may be worth showing as a successful form of *Beech* tree.

The river bank at Greenlands has been carefully cleared of weeds and cemented, but the action of the water, assisted no doubt by the wash of the abominable steam launches, is rapidly undermining it, except in one place where its natural

protection of Flages and Rushes and Water Dock has been left, and there it seemed to me to be quite firm, a good instance, it struck me, of the way in which Nature combines beauty with utility, and of the wisdom in such matters of taking any hint that she throws out.

ALFRED PARSONS.

THE ROSE GARDEN.

BEST STOCK FOR MARECHAL NIEL.

I WAS much interested in the useful and very suggestive remarks of Mr. Duffield (p. 33). Like him and many others, I have tried various stocks, and, at last, am in favour of the common Dog Rose. At one time I was quite a convert to the *Gloire de Dijon*. The *Maréchal* made tremendous growths on this stock, but proved short-lived and capricious. Our largest and oldest plants now are standards on the Dog Rose. Our crops from these are also the most useful, and we are seldom without *Maréchal* blooms from our standards from June to December. I believe the canker with which most of us are so painfully familiar arises from the extraordinary luxuriance of this Rose. It grows so fast as to rend its bark asunder, the young wood literally bursting through the cambium as well as exposing its ruptured tissues to the action of the atmosphere. The sap is thus exposed to the air and converted into a cankered, diseased mass. But this only removes the difficulty one step further, for we are equally in the dark as to those abnormal and excessive growths—their cause or cure. They are commonly attributed to certain stocks, but this can hardly be the case, as they occur, though not so frequently, to this Rose on its own roots. Again, this Rose also frequently refuses to grow under apparently the most favourable conditions. The self-same plants will then often throw up a monstrous shoot, flower magnificently one year, and die at once, or dwindle out a miserable existence, the mere shadow of their former magnificence. And this on many stocks and also on its own roots. The fact is, the capriciousness of this Rose has baffled me, and I should be glad if many other readers would imitate the example of Mr. Duffield and record their experience in THE GARDEN. His plan of earthing up to the cankered or swollen part would evidently prove most useful in cases where the plants had been worked low. But not seldom the entire excrescence becomes a mass of gangrene or rottenness almost as soon as it is developed. Our chief remedy for the failings and caprices of this king of golden Roses is to grow a great many, plant them in all sorts of places, and keep a good reserve, by striking or working a good many every year. By the way, it does not root from cuttings so freely as most Roses, but thrives fairly well on its own roots under glass, and also worked on pink or yellow *Gloire de Dijon* close to the ground, so that the union may be covered over with porous soil, pounded charcoal, or gritty sand.

D. T. FISH.

Maréchal Niel Rose.—I think there can be little doubt that the Brier is the best stock for this Rose, as it is for *Gloire de Dijon*. The Brier does not sicken with the *Maréchal* growing on it, provided the soil is a good Rose soil; the death of the *Maréchal* on the *Manetti* stock is always a measurable quantity. There used to be, a few years ago, some half-dozen plants of this Rose on the Brier growing against a high wall with a north aspect at St. Giles, in Dorset. The wall, probably 20 ft. high and 40 ft. in length, was covered from top to bottom. This was the largest space covered with this Rose I ever saw. Immense quantities of Roses used to be gathered from those north plants, and up to an unusually late period of the autumn. If I remember rightly, those plants were unusually luxuriant, and not tormented with much cutting in the way of pruning. The soil, which was on the chalk, was of a very heavy texture. But the strongest growth of *Maréchal Niel* I have ever seen was from a bud inserted in an old plant of the *Boursault* Rose; I am not, however, able to say if it would prove a long-lived connection.—HIBERNIAN.

—*Maréchal Niel* has done well with me upon the common Brier as standards, and also upon its own roots. Some years ago, in the autumn of the same year in which my plants were budded, I took up and potted in a 12-in. pot one plant in strong turfy loam and spent hotbed manure. It was then placed in a new late Vinery. The following summer it made free growth, which was trained along the back wall thinly, by which means the wood became well ripened. In April following it produced ninety blooms, the petals of which were very thick. During the time the buds were swelling liquid manure was freely supplied. Two years ago next April I planted a small plant of this Rose, a cutting struck the February previous, in a narrow border at the foot of the back wall of the greenhouse. During summer it made several shoots, the longest of which was

14 ft. Last February it produced thirty-five blooms; after blooming it commenced to grow freely, making twelve shoots, which were trained under the roof, and the longest growth made since March last is now 25 ft. The foliage is large, and the buds from each leaf are now pushing strongly. Another plant in the same border started in March last with three shoots, the longest of which is now 23 ft. It was planted in strong loam and cow manure, with a liberal quantity of old lime-rubbish, and has been well supplied with water, both at the root and overhead. These growths, I think, are sufficient to show that *Maréchal Niel* is not always a slow grower on its own roots.—E. MOLYNEUX, *Swanmore Park*.

Gloire de Dijon.—Amongst Roses which have stood the test of time, and which still not only maintain their position, but are ever increasing in popularity, few can equal *Gloire de Dijon*, for, although *Maréchal Niel* appeared a few years ago as if it would carry all before it, it must be acknowledged that, as an outdoor Rose, it is as much inferior to *Gloire de Dijon* as it is superior to the latter under glass. I have grown *Gloire de Dijon* in all sorts of forms and positions out-of-doors, and it is always satisfactory; and as a wall climber I do not think that any Rose excels it, either as regards beauty when in bloom or the length of time during which it continues to produce its lovely blossoms. It is one of the earliest and latest of Roses. Who has not seen glorious examples of this popular Rose on the sunny sides of villa and suburban residences, with its strong shoots of the preceding year's growth, perfect wreaths of delicately-coloured flowers? We have a plant of it here covering a large space of south-west wall that is seldom seen without blooms or buds on it. I have lately cut really good blooms off it, and many more are expanding, so that, under a continuance of mild weather, this grand old Rose well deserves the title of perpetual-flowering, and it is no slight boon to have a variety on which one may depend to furnish even a few blooms to cheer the dark days of early winter without the aid of glass. Therefore, to any one about to plant wall climbers, whether on mansion, villa, or cottage, I would say, if you have only room for one, let it be that well-tried Rose *Gloire de Dijon*. J. GROOM.

Extra Protection to Tender Roses on Walls.—The Roses, like the blackbirds and thrushes, have made a mistake in warm and sheltered places. They have begun to put forth their tender leaves and buds. The sharp frosts since Christmas have done something to arrest them, but the previous mild weather has created the demand for more protection. Nothing equals for this purpose Spruce branches, Yew boughs, or Fern fronds, where these are available; and from this period they are as useful in shading off any warm gleams of sunshine by day as in keeping out the cold at night. The former, in fact, often do far more harm to such excitable Roses as *Maréchal Niel*, *Cloth of Gold*, *Lamarque*, *Devoniensis*, *Céline Forestier*, &c., than the frost. The two work together towards destruction, the sun drawing them forth into such tenderness that the slightest touch of the frost suffices to make an end of them. The screen of boughs neutralises the force of both, and so conserves many a Rose that would otherwise be blighted and blackened. Neither do such screens look unsightly. We have just covered the front of our cottage with such boughs as a screen to Teas, and it gives it a more verdant and cheerful look. Another great virtue of such screens is that they defoliate themselves so gradually as finally to leave a mere skeleton, the removal of which is but little felt or missed by the Roses. Even the maggots and aphides seem to avoid the sharp needles of such screens, so that they are hardly liable to the charge so justly made against most protectors, that of encouraging insect pests. Roses on cooler aspects are best and safest without protection, unless the thermometer sinks to 15° of frost. For, paradoxical as it may seem, the warmer the site for tender Roses the greater the need of protection.—D. T. FISH.

The Irrigation of Roses.—There can be no doubt that "W. D. P. P." is quite right about the value and importance of irrigating Roses (see p. 33). On hot soils in hot summers and in dry localities it is invaluable. East Anglia is a climate in which it is often of the greatest service. Rose beds and borders should be so formed in dry climates as to admit of their being flooded overhead without inconvenience or disfigurement, for of course very few can have such arrangements as those indicated by "W. D. P. P." for subterranean irrigation. Neither is this needful, nor perhaps the best; all that is needful is thoroughly to soak the beds or borders with sewage or clean water, so that if possible the ground may be under water for an hour or so. Of course this must not be done unless the ground is porous or well drained, for though Roses are great drinkers, nothing undermines their health sooner, nor lowers their quality more, than stagnant water at their roots. The evaporation from the wet surface of the Rose beds and borders creates a local atmosphere most favourable to the development of the finest, freshest, and most fragrant blooms.—D. T. FISH.

THE FLOWER GARDEN.

LILY CULTURE.

I HAVE been interested in the remarks in *THE GARDEN* about the culture of Lilies, and especially in the letter of Mr. Burbidge in your impression of December 25 last. I am quite sure that what he says about leaving all old Lily stems uncut, and also about filling in the interstices of the bulbs with dry sand, is of the utmost importance. I think it is also a good thing to plant the bulbs in rather a slanting direction—anything which keeps the rain from getting between the scales is of use. I am going to put some pieces of glass over the choicest and most tender of my Lilies, with the same purpose in view. I shall keep the glass over them till they begin to break, and it will surprise me if this does not tend towards saving the bulbs, as it unquestionably does save many an alpine plant.

But the point on which I now venture to say a few words is of a different character. I write under correction, because I do not feel at all certain about the matter. I only should like to ask if it is an ascertained fact that all Lilies with, I believe, one exception, viz., *Lilium philadelphicum*, do best in the shade. I have taken it for granted till lately that such is the case, and I believe that nine persons out of ten do the same. It is generally supposed that the full glare of the sun is harmful to them, and that they must be protected from its rays. But is this an absolute certainty? The following is my reason for having some doubts about it:—

Lily Bed in the Shade.—About three years ago I took it into my head to prepare a bed exclusively for Lilies. Of course I imagined that it must be in the shade, but as my garden happens to be one of the very hottest in the kingdom, this was not so easy to manage. I found, however, one shady spot not far from the house, and I gave up the whole of it to the different sorts of Lilies. The whole of the original soil was excavated to the depth of 4 ft. and carried away. Sunken walls were made in it to keep out the roots of a tree, and it was filled with a compost which was prepared according to the best rules I could find. I neglected nothing which I thought would make Lily-growing a success. In this bed a great many of the best Lilies were placed, and of course among the rest there were several specimens of *Lilium auratum*.

At the same time and without much of thought about it I dotted my garden over with a few surplus bulbs, and two or three bulbs of *L. auratum* were put in one of the hottest spots you could meet with. There was no preparation made for them and nothing peculiar about the bed in which they were placed, excepting that it was fully exposed to the sun. Now, what was the result of all this? I confidently looked for blossom in one part of my garden and I did not expect to find it with regard to *Lilium auratum* in any other. The bed that was prepared in the shade should have been a success, and everything else was forgotten. But the result set all rules at defiance. Not one bulb of *Lilium auratum* did anything at all in the bed which had been so carefully prepared; whereas one of the bulbs on which no special attention had been bestowed sent up last July a magnificent stem, and had between fifty and sixty blossoms on it, of which forty-six or forty-seven were open at one time. It was one of the most gorgeous spectacles I have ever beheld in a garden, and for a few days it was the talk of the neighbourhood. It would have graced even the garden of Mr. McIntosh at Weybridge. Now, what was the reason for such an exceptional and unlooked-for piece of good luck? There can be no effect without an adequate cause, and if I could find out what made this particular Lily do so well, I have a strong idea that a secret would be revealed to me of no little value. It will seem the more odd that such a degree of splendour should have been attained when I state that the prince of all the Lily growers, Mr. G. F. Wilson, himself threw great doubts upon the bed where my greatest triumph was won. At any rate I remember him saying, when he paid me a short visit a few years ago, that if I wanted to grow Lilies on the south side of my house I should do well to put large hurdles across the beds similar to those which are used by my neighbour, Sir William Hutt, for a different purpose. He seemed to me to be struck with the hot and burnt-up appearance of my garden, and I have always considered from that time to this that a very large part of it was condemned by the highest authority of all for the purpose of Lily growing, for no one can have seen Mr. Wilson's Lilies as I have seen them without wishing to sit at his feet and to hear everything he has to say about them, and then to carry it out to the letter. But here I am almost tempted to think there is something which was not dreamt of in his philosophy. At any rate no hurdles were used by me to procure shade, and the result was of the best description without them.

Sunny Positions Best.—It may be an altogether erroneous idea, but I cannot help suspecting that the wholesale failure of *Lilium auratum* in the only shady spot in my garden, and its excep-

tional and great prosperity in a very exposed and burnt-up situation, go to prove that it not only tolerates, but that it really likes the sun, and that full sunshine may be accounted as an element of success. This is by no means the first time that I have had the same idea about Lilies. I remember a few years ago being in Guernsey in the summer, and a broiling time we had of it there; I saw in the nursery garden of Mrs. Ridout a magnificent specimen of *Lilium Browni* in full blossom. It was growing on what looked to be a sort of mixture of gravel and peat, and there was not a particle of shade anywhere near. At the time I thought it was strange that any Lily could do so well in such a place, but it only tallies with my more recent experience. I have also known *Lilium tenuifolium* do well on a very hot rockery. I should be surprised if *Lilium giganteum* would live in a hot place—it seems so to revel in the shade; but I can take nothing for granted, and Lilies seem to me to delight in the unexpected.

We are having no winter at all in the Isle of Wight, but have made a leap from autumn leaves to spring flowers without anything to come between them at all.

HENRY EWBANK.

St. John's, Ryde.

PERENNIAL V. ANNUAL LILIES.

"What's in a name?"

How certainly the pendulum oscillates between one extreme and another when let loose, at one rebound reaching at once the point the farthest removed from that where previously it had been held! How curious it sounds to hear that Lily bulbs are annual when a few years ago they were commonly held as perennial! Are we, then, so very much wiser than we were a few years ago? Is there not rather a confusion of terms, and a strong necessity for some phrase that shall more adequately represent the true state of things than an "annual bulb"? In the first place, what is an annual? A plant that in the space of one year or less goes through all the stages of vegetation from the seed to flowering, and dies after having produced seed that shall reproduce itself another season. How can the term "annual" by any possibility be legitimately applied to a Lily whose seedling does not reach the flowering stage for years after it has vegetated, and whose growth each year, when properly cultivated, is stronger in proportion to the increase of food stored up in the bulb? No doubt there is and has been much carelessness in describing, if not in observing, the growth of all perennials, *i.e.*, plants that do not pass each year through all stages from the seed to death—"perpetuated only by seed"; but because some accurate observers have found what they had not thought of before, namely, that a Lily bulb is not persistent in the sense that the trunk of a tree, with its yearly layers of new wood, is, they have hastily, and from want of a better word, called a Lily bulb "annual," and thereby caused dissent from many of those who hold more closely to the original meaning of that word. To give an example, who calls a Primrose an annual? and yet its root stock grows at one end and dies at the other at a faster rate than most Lilies; that plant, nevertheless, may under some conditions reproduce itself from seed in twelve months from its being sown.

The fact that Lily bulbs die in part and are renewed in part in a twelvemonth shows the term "annual" to be misleading. In those that change their constituent parts most rapidly there are always at least two stages, namely, the "germ" and the fresh bulb that is to supply the next year's growth; and in many, if not most Lilies there are three stages, namely, the germ, the fresh bulb, and, thirdly, the scales, that having supported a year's growth, will more or less quickly decay away, but in some instances, notably in rhizomatous Lilies such as *Washingtonianum* and *Pardalinum*, persist for another year. Such a complex organisation as a bulb, be it Lily or any other corm, tunicated bulb, or even tuber, comes strictly under the heading of perennial, so that until a new word be coined (not that I think it necessary) it is surely best and most accurate to keep to the old term perennial bulb. Mr. Miles will, I hope, pardon me if I differ from him when he says (p. 29, January 8): "When we uncovered the bulb we found it had made no new growth," &c., and draws a conclusion therefrom. While not wishing to doubt the accuracy of his observation, it is such an extraordinary thing for a Lily bulb to throw up a second flowering stem without having made previously new scales to support that growth, that it seems to me more parallel instances should be found before any theory be founded on it. I myself have repeatedly had a fresh and healthy shoot come up the centre of the old flower-

stem, and, more than that, have seen that stem flower healthily. The Lily that has done so has always been *L. testaceum*, and on examination I have found the bulbs healthy in every point, the fact being that the new growth had so closely occupied the old, and the axis of growth remained so closely the same, that the new flowering stem entered the old through a split $\frac{1}{2}$ in. above the bulb, or even closer in one instance, so that here there is nothing of importance to be deduced from what might seem quite an important discovery, but was simply an accident or freak of Nature.

It is certainly a thing to be observed that the great importers of bulbs of all kinds, who have the greatest opportunities of examining the general growth and habits of Lilies, are among those who object to the misuse of the word "annual;" let us all bear this in mind.

E. H. WOODALL.

GRASS LAWNS AND MOWERS.

IN reviving the subject of permitting the cut Grass to lie and wither upon the lawns or otherwise, "J. E. H." (p. 30) recalls to mind the warm discussion upon this topic which took place a few years ago when the American mowing machines were introduced. If we go back to that discussion we shall find, that not only was the opinion given that lawns would be vastly improved if the short-mown Grass was allowed to lie on the surface, rather than be removed, but the impression was almost conveyed that, until the discovery or introduction of these American machines, we never had, nor could have had, a lawn of short Grass worthy of the name. I think it is a safe assertion to hazard that there are now in this country thousands of good lawns that have been shorn, lawns that have had all the Grass removed from them for hundreds of years, and are still as good lawns as ever they were, if not better, and yet, if we had credited all we have been told, such a thing would have been impossible. I have a lively recollection of the old scythe days of mowing; they were not happy days. Marvellous was the improvement made in a badly scythe-mown lawn after two years' use of the Shanks's collecting lawn mower, and where the mowers have been properly set this experience is universal. The clean work made by a good collecting machine always commends itself to all who admire neatness, and it is a fact that whereas there may be differences of opinion as to the best way to plant or to keep a flower garden, there are few or none as to the desirability of having a lawn smooth, clean, and closely shaven. It is as essential a feature in a good pleasure garden as are tidy, well-kept walks. The supposed recommendation of the American mowers was that they left the cut Grass lying as a mulch upon the surface; but where Grass grows thickly and freely no mulch is wanted. It is injurious to the Grass and a nuisance; even where Grass is on poor, hot, dry soil, and makes but the smallest growth in summer, the mulch is too infinitesimal to be of any practical value. What little Grass is left is dried up and made utterly insignificant as a manure under the scorching rays of one day's summer sunshine. I have no doubt whatever that nine-tenths of our gardeners prefer collecting machines and use them. The principle of distributing the Grass has been more favoured in theory than in practice. A dressing of soot or guano is worth a hundred dressings of mown Grass, and is much sooner disposed of. Beyond mere mowing collecting machines have done much to save lawns from the irritating action of the broom, except in the heaviest of the leaf season, and in that respect much good has been done to the Grass. "J. E. H." will hardly do wrong if he is guided by the results described in his own extract, as I believe that such results are very general.

A. D.

CARNATION SEED.

It is said (p. 55) "Get plants of good show kinds and grow your own seed." If the saving of good seed were a matter of such easy accomplishment it is somewhat remarkable that seed of good strains is not abundant, but the very fact that it is so scarce clearly indicates that good Carnation seed is difficult to get, and when got it is of almost inestimable value. In reality the finer quality the flowers the less likely are they to produce seed. We now and then get a season—probably a hot, dry summer—when Carnations will yield some seeds, but these seed seasons are very rare, and when found must be made the most of. In the case of plants in pots in which artificial crossing and fertilisation is employed, many pods fail, and those that do produce seed have comparatively few, so that what is saved, having regard to its scarcity and the labour employed to produce it, is literally worth a Jew's eye. The seed saved on the Continent is usually fairly cheap because the flowers from which it is saved are of but a semi-double character, the most double flowers of a

strain seeding least, and those most single seeding freely. The strain is therefore not worth much, and if so, little should be expected from it. I have, however, raised Carnation seed sold both by Mr. Benary, of Erfurt, and the Messrs. Vilmorin, of Paris, that was not of the collection strains, and have found it to germinate freely and to produce quite one-half of good double flowers, not of exhibition quality, but really good showy border flowers, and very useful, indeed, for the making of bouquets. Some of these seedling plants have proved so exceedingly floriferous that they have made all flower-stalks and no grass, and have, therefore, died in the winter. What few seeds have been saved from these have always been, from the least, double flowers. Mr. Benary offers seed of a scarlet kind, called Grenadier; a packet of this gave but one plant of the kind named, but it yielded several really good showy sorts, flowers large and full of various hues, but the edges of the petals were uneven and serrated. Few would, however, despise them as border flowers, but for exhibition purposes they would be useless.

Layering.—It is, however, a fortunate circumstance that the Carnation though chary as regards producing seed, is not difficult to increase by means of layers. There is, perhaps, next to seed sowing no easier method of increasing stock than by layers. It is work which can be done at any time after the bloom is over; it may be performed in the ordinary garden soil, occupies but a short time, and is just such work as any amateur grower would take pleasure in performing. I did this in the case of my best seedlings, and made from six to nine plants of each, thus getting a stock that may next year be trebled. Too many of our fine old border Cloves and Carnations are lost simply because the annual operation of layering is omitted. Our trade growers of these things, such as Mr. Turner, of Slough, grow all their plants in large pots, and layer them in the soil in the pots. As soon as rooted these layers are taken off, and, as a rule, potted in pairs, as it is one of the traditions of the trade that Carnations, Picotees, and Pinks be sold in couples.

Seed Sowing.—When seed is obtained it should be sown in a pan under glass in the month of April, and it will germinate freely without artificial heat. The seedlings when large enough may be pricked out into a bed in the open, and the plants removed to the border in the winter. A. D.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Bulbous Iris.—In THE GARDEN (p. 59) mention is made of an Iris in flower at Hale Farm Nurseries, said to be sold by Mr. Ware under the name of *Iris scorpioides*. In Mr. Ware's last bulb catalogue, *Iris scorpioides* is said to bloom in autumn. Perhaps Mr. Ware will give the right name in another number of your paper. —H. [This Iris (*I. scorpioides*—syn., *Xiphium planifolium*) has two distinct terms of flowering—first in autumn; then again, if the weather is not severe, in December, January, and February.—W. G.]

Carnations from Seeds.—Permit me to write a few lines in favour of these. No florist in his sober senses would expect show flowers from them as a rule, but they are simply invaluable as garden plants and for cutting. Strong in frame, as a rule, infinitely varied in colour, size, shape, fragrance, and most profuse bloomers, they are among the most showy, as well as the most useful, flowers in all the garden for many purposes; it matters little even whether they are double or single. Vases of single Carnations may often be more elegant than those filled with double ones, and it is but seldom that the most common-place lot of seedlings does not produce a fair percentage of double flowers; and as for ragged edges, the more ragged the more picturesque. By all means let our florists keep up their smooth, circular, properly-formed, coloured, and displayed strains of Pinks, Picotees, and Carnations, but let the mere decorator and the flower gardener have his patches, beds, and borders of seedlings distinguished by more of the freedom of Nature than the prim stiffness of art. We want far more seedling Carnations in our gardens, and I hardly know whether the pedantry of our florists or the pilfering propensities of our rabbits are most to blame for their absence.—D. T. FISH.

Mimulus glutinosus is a most useful perennial, succeeding with very little care and barely protected from frost. It strikes from cuttings as easily as a Fuchsia, grows very rapidly, sending up a profusion of shoots from the root, and its graceful branches are covered with delicate Apricot-coloured flowers from May till October, and during the winter the thick, bright foliage is very pleasing. I have rarely seen it in greenhouses, and was told by a gardener who had it that it was an old-fashioned plant for which there was no demand. It may therefore be worth while to mention it.—G. G.

Exhibition Pansies.—As the time is very near when purchasers will be making their selections of Pansies, allow me to fur-

nish a list of what I consider to be the best varieties for exhibition purposes, and with which I have taken more than 100 prizes: Show varieties—Alpha, very constant; Alexander Adam; Mauve Queen; Mrs. Horsburgh, yellow; Rev. D. Taylor, maroon; Robert Black, dense black; Sir Peter Coats, purple; Wm. Stewart, plum, a grand variety; Defoe, yellow ground, of large size; Dr. Livingstone, yellow ground; J. B. Downie; Robert Burns; Perfection; Jane Grieve, white ground; Janet Lees; Lavinia; Mrs. Fraser; Mrs. Bunyard and Miss E. Cochrane. Fancy varieties—Buttercup, F. W. Lelland, J. B. Downie, Kirkby, Mrs. Taylor, Mrs. Birkmyre, Miss M'Murtrie, Thalia, Robert Cowan, James Taylor, John Currie, Mrs. Crawley, Mrs. James Watt, Lady of the Lake, Mrs. E. H. Wood, Mrs. Grainger, Charmer, and Mrs. M'Taggart.—R. MANN, *Shedwell, Leeds*.

THE GARDEN FLORA.

PLATE CCLXVIII.—MILLA (TRITELEIA) LAXA.

FEW among the bulbous plants of our hardy flower borders are prettier than this the subject of our plate, and though it is not generally known to hardy flower lovers, we hope that our illustration will tend to make it more popular. It may be seen at a glance what a beautiful plant it is either in the border or in a cut state. As is the case with several other plants that come to us from North America, it is known under various names. In this country it is best known as *Triteleia*, others know it as *Seubertia*; but, according to the most recent revision of the family, it is classed with the *Millas*, with which we consider it ought to be. The American botanists, however, rank it with the *Brodiaeas*, as, indeed, they do all the *Triteleias* or *Millas* of that country, with the exception of the beautiful *M. biflora*, the only one they consider a true *Mill*. About half-a-dozen *Millas* are natives of North America, and are chiefly confined to the western regions, more particularly to California. *M. laxa* is a native of the coast ranges from San Francisco to Humboldt County. The other species from this region are *M. capitata*, *M. grandiflora*, *M. peduncularis*, *M. ixioides*, *M. hyacinthina*, and *M. biflora*. Of *M. laxa* there are two varieties, one of which is represented on the plate, besides the typical form. The name of this variety is *Murrayana*; it is much the finest form, the flowers being larger and of brighter colour, and the plant generally more floriferous. The other variety is *alba*, a white-flowered kind, recently introduced to cultivation, but which we have seen in flower.

Culture and Position.—There is little to say with regard to culture. The place to grow the plants in should be a sunny, open spot, never shaded. The border should be thoroughly well drained, and if raised above the surface so much the better. The soil should consist of a rich garden mould, light and friable, and the bulbs planted at a good depth, so that they would be out of harm's way in the winter, for, though the plant is perfectly hardy, our recent severe winters have injured it in many places. Sunny borders or beds of choice shrubs offer a suitable position for this plant, apart from any beds or borders devoted to the newer and choicer hardy bulbs.

W. G.

[After our plate was commenced Mr. W. E. Gumbleton sent us a drawing by Miss Travers, showing a pretty white and a delicate pink form of this plant.]

A FEW NEW OR RARE PLANTS.

Wilbrandia drastica.—This was first named by Messrs. Haage and Schmidt, of Erfurt (by whom this and the three following novelties are now being distributed), *Rhynchocharpa glomerata*, but M. Naudin has since pointed out that its correct name is *Wilbrandia drastica*. It is an interesting climbing Cucurbitaceous plant from Brazil, growing from 12 ft. to 15 ft. in height. Its branch-



THE PURPLE MILIA (M. LAXA & VAR.)

ing habit and thickly-set, abundant foliage make it specially well adapted for covering arbours and fences, or for garnishing festoons. The whitish flowers, as is mostly the case in this tribe of plants, are not very conspicuous, but the deeply-cut, five-lobed leaves, to-



Wilbrandia drastica.

gether with the numerous Hazel-nut-like fruits, which appear in dense clusters, render this plant one of the most attractive climbers for outdoor culture. To judge by the tuberous-like root, it may be treated as a perennial, but it succeeds well in any warm border as an annual.

A New Everlasting (*Gnaphalium decurrens*).—This newly-introduced species forms a dense, compact, branching bush from 10 in. to 12 in. high, out of which rise numerous heads of white



Gnaphalium decurrens.

flowers in dense, corymbose clusters that appear in profusion on the ends of the flower-stems, and on the many smaller side branches. The plant is a perennial, and probably just as hardy as the nearly-allied *Antennaria margaritacea*, but, coming to perfection the first season when sown early, it can with success be treated as an annual. The neat globular flowers are sure to become favourites amongst Everlastings, being more elegant than those of *Antennaria* used so extensively at present, and the plant is of much easier growth than the Australian Everlastings, such as *Helipterum*, *Waitzia*, &c. It thrives luxuriantly in any soil, and needs no more care than *Helichrysum* or *Ammobium*. Where Everlasting flowers are employed this plant is certain to be considered a desirable acquisition.

The Californian Big-root (*Megarrhiza californica*).—This is a new and very rapid growing Cucurbit from California, of the same elegant habit and handsome appearance as *Pilogyne suavis*, but of much larger dimensions, the stems attaining a length of from

20 ft. to 30 ft. in one season. The beautiful, glossy, silvery leaves, from 3 in. to 6 in. in diameter, bear short, scattered hairs. The small white sterile flowers appear in slender racemes, while the fertile ones grow singly and are somewhat bigger. The oblong-shaped fruits, about 2 in. long, are densely covered with stout pungent spines similar to those of *Echinocystis lobata*. The seeds are totally different from all other Cucurbitaceous plants introduced up to the present time, being of about the same size and form as a Broad Bean, and germinate as easy and sure as Pumpkin seeds. The plant develops itself fully when grown as an annual,



Megarrhiza californica.

but it can also be cultivated as a perennial, as it produces long and large tuberous roots.

Lietzia brasiliensis.—A new tuberous-rooted Gesneraceous plant, in habit and foliage similar to the well-known sorts of *Gesnera*, as, for instance, *G. caracasana*, but the form of the flowers is so strikingly different from all other species known that it could not be classed amongst the members of the existing genus, and a new one had to be created. The flowers are finely dotted with purplish-brown spots on a light green ground, varying in several shades, sometimes almost blackish-brown, with only a narrow, light green margin; the shape of the flowers is well represented in the annexed figure. If sown in January or February like other *Gesneras*, the plants will be in full bloom during the summer. It is



Lietzia brasiliensis.

a native of Brazil, where it was found on the banks of the river Doce by Herr Lietze, after whom the genus is named. It was figured some time ago in Regel's "Gartenflora."

GARDENING FOR THE WEEK.

Vines.—Proceed with disbudding and tying in the early house. Stop the most forward shoots two or three joints beyond the fruit and remove all surplus shoots from free-setting kinds as soon as the most promising bunches can be decided upon. If internal borders have not been watered since the house was closed they should have a good supply at 80° to 85° before the Grapes come into flower. The external covering will also require attention, and if fermenting leaves are used, a mean of 70° should be secured by making additions and keeping all compact and dry by means of shutters placed above, but not touching the leaves. Aim at a night temperature of 60°, and keep the fires going every morning until air can be given at 70°. Syringe all bare stems and surfaces twice a day, and close in time for sun-heat to run up to 80°. Syringe succession houses two or three times a day and turn the fermenting material occasionally. Tie down the points of strong rods that do not incline to break evenly, and reduce direct syringing when the bunches become prominent.

Pot Vines.—Look well to these. Crop lightly and thin out the bunches and berries as soon as they are out of flower. The first stopping should not exceed the second joint beyond the bunch, but laterals may be laid in to cover every part of the trellis with foliage. Feed the roots with clear diluted liquid, and add fresh top-dressing as feeders appear on the surface. Cut-back Vines may be taken into heat; water sparingly at first, but syringe regularly, and apply styptic if they show signs of bleeding.

Strawberries.—When the early-started plants begin to throw up their flower-stems the latter may be encouraged to rise well above the foliage by being shut up for two or three hours on fine afternoons, and when they come into flower they may be removed to the most airy part of the pit, where they can enjoy the full benefit of light and sun, with the temperature ranging from 50° at night to 65° by day. After the fruit is set, by artificial means at this early season, thin off late flowers that are forming; water with tepid liquid, and remove to a warm house where the fruit will swell rapidly in a stove temperature. This move forward will admit of a general advance, and leave room for the introduction of another batch of plants from the pits. Where Vineries and Peach houses are shut up for forcing, a few plants of President, Napier, and Paxton may be placed on shelves near the glass, but not within reach of the parching influence of the pipes. Let all the pots be well washed. Examine the apertures to see that the drainage is satisfactory, and top-dress with strong loam and rotten manure.

Plums.—Although Plums are very often grown in the mixed orchard house and with Cherries, the most satisfactory mode of culture is that of giving them a structure or a section to themselves. To make the most of a given space sterling kinds like Jefferson, Transparent Gage, Kirke's, and Golden Drop should be grown on a fixed trellis, 12 in. from the glass, exactly the same as Peaches; but the amateur who wishes to grow a number of kinds will have to continue the more expensive and less certain system of growing his trees in pots. Treatment recommended for Cherries, with this difference that they may have a shade more heat through all the stages of their growth, will suit them very well. Plums suffer quickly and often past recovery from the ravages of green and brown aphids and the larvæ of the Plum sawfly, which, bred in the calyx of the flower, destroys the young fruit before its presence is observed. To guard against these pests all loose surfacing should be removed from the borders every winter, the trees should be well washed with insecticide when dormant, and the destruction of fly should be secured by smoking two or three times before the blossoms open.

Melons.—When the first seedlings have made a rough leaf, shift into larger pots or plant out in their fruiting quarters. In hot-water pits with bottom-heat from pipes and fermenting material, large pots offer advantages where earliness is a consideration, but conical hills or ridges running the length of the pit answer equally well. For housework the young plants should be trained to sticks until they reach the trellis, two-thirds of which they may cover before the points are pinched out to induce side shoots. Use rich, strong, loam in a rough state for the pots or hills; see that it is thoroughly warmed through before the plants are placed in it, and keep shifting on or fall back upon a later sowing where these conditions have not been secured, as pot-bound plants are worse than useless. Where pits or frames are used for the early crop it is usual to stop the plants when they have made two or three leaves, but this system of culture at this early season entails great labour in the preparation of the fermenting material and the management of the beds and linings; moreover, where labour is scarce or expensive top-heat should be obtained from hot-water pipes running along the front. A very important item in successful culture at all times is a good stock of seasoned loam in a dry airy shed.

Orchard House.—See that early-started trees now approaching the flowering period are regularly syringed and watered with water a few degrees warmer than the house, and carefully guard against daily dribbles which give the top-dressing a satisfactory appearance while the roots below may be starving. When the first blossoms show signs of opening, fumigate once or twice with Tobacco paper to insure freedom from aphids during the setting period, raise the night temperature to 50° or 55° when mild, and 10° higher on fine days, and impregnate the flowers, when, but not before, the pollen becomes plentiful and flies freely. When this stage has been reached discontinue direct syringing, but keep up the proper degree of moisture by damping bare stems and other available surfaces when external conditions favour a free circulation of air. Get the usual occupants of the late house into position, giving Figs and Peaches the warmest, and Pears, Plums, and Cherries the most airy part of the structure. Where pruning has been deferred the final thinning of the shoots must now receive attention. Maintain the symmetry of the trees by shortening strong shoots to triple buds, and leave weak ones the full length.

Stove.—Where the stock of *Clerodendron Balfourianum*, *Bougainvillea glabra*, and *Allamandas* of sorts is strong, a plant or two of each way be pruned, tied, and encouraged to start into growth. Syringe occasionally to keep the stems moist, water sparingly with tepid soft water, and defer potting until they are fairly on the move. Proceed with the pruning and training of the remainder of the plants. Keep them in the coolest part of the house, and give very little or no water during the time they are at rest. Shake out and pot a few of the *Gloxinias* and *Caladiums* that had started into growth at the time they were removed from their winter quarters. Give more heat, gradually inure to light, and water sparingly. Place a few more roots on the tan bed for succession. Examine *Achimenes*, and pick out a few for early flowering; place the roots in pans of fine leaf-mould, and transfer to the flowering pots or pans when 2 in. high. Give *Eucharis* that have done flowering a short rest by reducing the supply of bottom-heat and water. Sponge the leaves to keep them free from spider, and introduce fresh plants for giving a succession of bloom. Push forward the cleaning of *Gardenias*, *Stephanotis*, and other plants subject to mealy bug, and get the latter tied before other work becomes pressing.

Pleasure Ground.—In mild weather prune deciduous trees and climbers, and complete the planting, mulching, and staking of others that were not placed in position in the autumn. On cold heavy soils good drainage is imperative, and sound compost capable of producing moderately strong and thoroughly ripened wood will be found the most suitable for trees liable to be injured by severe frosts. Defer the planting of evergreens until April, as a period of severity close upon the cheek might prove fatal. Top-dress lawns where poor with rich compost free from the seeds of weeds. Soot, burnt earth, and good loam cannot be surpassed for the roots of Grass, shrubs, and Conifers. Turn old walks, and roll down firmly; but defer facing with new gravel where this is needed until the approach of spring.

Hardy Flower Garden.—Take advantage of dry weather for deeply digging and manuring with good rotten cow manure or leaf-mould beds intended for *Anemones* and *Ranunculus*, and lose no time in getting them planted. Place a little sand about the roots, and protect from frost. Look over spring-flowering plants, make up gaps, stir the surface soil, and secure any that have been loosened by frost. If autumn-planted *Violas* have become "drawn," peg them down, and top-dress with rich compost. *Calceolarias* and *Violas* in cutting frames may now be pinched to make them throw out side shoots before they are lifted and transplanted in February. Old plants of *Cineraria maritima* pull to pieces, and plant in sandy soil in a sheltered place out of doors, where they will become well rooted by the time they are wanted for the beds in May. Another valuable old plant, *Verbena venosa*, may be rapidly increased by cutting the roots into short lengths and placing them thickly in shallow pans of sandy soil. To secure strong plants a little warmth from a gentle hobbed will be an advantage.

Kitchen Garden.—With a light covering of snow on the ground and the thermometer each night registering 25° to 32° of frost, operations in this department will be limited to the wheeling of manure and the application of additional protection to existing crops of vegetables which usually suffer from the effects of severe frost. Where Spinach is in daily request a few of the best rows should be covered up and late beds of Parsley hitherto left open will require old lights or shutters placed over them to prevent breaking down by a heavy fall of snow. Keep frames in which Endive is stored as dry as possible. Tie up or otherwise blanch for succession, and place burnt earth or refuse Charcoal amongst the plants to prevent them from damping. Stir the soil amongst young Cauliflower plants, and keep them hardy by means of ventilation. Prepare stations for cap-

glasses on south borders ready for the reception of the most forward plants of Veitch's forcing, Frogmore and early Erfurt, when the weather breaks. Make a good sowing of Advancer and other early Marrow Peas in pots, or on turf to succeed the early round kinds. The quality of these being so much superior to that of the first earlies, a larger breadth of the best borders should be given to them. Look well to late Celery, and protect from frost and wet. Broad boards nailed on the tops of flat-headed stakes driven through the centre of the row, and 9 in. above it, make the best protectors. Prepare ground for the main crop of Carrots by deep trenching. Do not apply manure, but have in readiness a good stock of wood ashes and soot for forking in on a dry day in March.—W. COLEMAN.

THE KITCHEN GARDEN.

ASPARAGUS GROWING IN SMALL GARDENS.

I WAS glad to see in a late number of THE GARDEN an allusion to Asparagus culture in which the writer urged the necessity of giving the plant sufficient room for its roots. I would add to this, that, when allowed that room, it does not require an annual top-dressing of stable or farmyard manure, thought by some to be indispensable. This statement and the remarks which follow are offered in the interest of those who would like to grow Asparagus, but are deterred by what they read in books and in certain periodicals of the day. There is nothing to discourage any one from planting Asparagus in his garden, except the unpleasant conviction that he will not be able to enjoy the produce till the plant shall have acquired such an amount of strength and proportions as will allow it to be cut in the usual way; and that will not be till the second or third year after planting, according to the age of the plants when they are set. But all they really want is ample space to grow in, and a light or lightened soil well broken up and double trenched; and where there is no great depth of good mould, the space intended for the plants should be made as deep as is practicable. Those who are acquainted with the red land of the midlands know very well that it is impossible in such soil as ours to carry out in every instance all the instructions that some tell us are essential to success. Nevertheless we contrive to reap our produce, and plenty of it, in all seasons but those that are exceptionally dry.

Asparagus in Single Plants or Rows.—To any one who is debarred from making an Asparagus plantation after the approved model, or, if he could do that, has not an inexhaustible pile of stable refuse to draw upon, my advice would be to get some two or three dozen (more if there is room for them) of one-year-old plants, and put each in singly anywhere in his garden, but if in one place they should be set in a single row, and not less than 20 in. apart. Take care not to plant too deep; keep the crowns near the surface of the border, and if, as is very desirable, soil can be added afterwards, it will be sufficient just to cover them at the time of planting. As Asparagus likes a light sandy soil, whatever tends to improve the soil in that direction should be sought after—the finest portion of the ashes from the grates, wood ashes, common sand, and road drift, and soot used as an occasional top-dressing, not omitting salt, which should be scattered over the border at least twice during the year. But a little artificial manure might be added in early spring with advantage, and would be worth the cost. When Asparagus is grown in this way the roots extend to a considerable distance on either side of the row, and care should be taken not to injure them by digging. If the border is not over-salted it will be found a convenient place in which to prick out young vegetables, such as Broccoli and Lettuce; but it is better not to mature any in immediate contact with the roots of the Asparagus, unless the border has been heavily manured during the winter. Better heads can be produced in this way than by the ancient method of growing the plants in beds, where the seeds are allowed to drop and sow themselves, with a view to the young plants taking the place of those that are superannuated and worn out, a plan that I was surprised to hear advocated so lately as last summer. It reminded me of certain Strawberry beds, common enough thirty years ago, which were cultivated on the same principle. Every encouragement should be given to the plants from the very first, and as they are not permitted to supply your table with any of their produce till their roots have filled the spaces between the crowns, which will probably be by the end of the second year, nothing would be gained by putting in double the number of plants with a view to taking out every other one, when the yield will be a full crop.

A Plantation such as I have described would probably outlast any bed constructed after the old fashion; but on the very first signs of declension after it had run on for a dozen or fifteen years, it might be well to look out another place, and lay the foundation of a new plantation. I write this advisedly; for last year, which was

unfavourable to the Asparagus crops generally, and which caused my row to yield scarcely half its usual produce, proved fatal to the plant upon which my experiments have been made, and whose produce had been gradually diminishing after a quarter of a century's existence in the same spot. This plant was left entirely to Nature, and never knew even so much as the smell of the farmyard. The writer before alluded to recommends that the berries be not allowed to fall on the ground beneath. This also is good advice, and the easiest way to follow it is to remove all the berry-bearing branches as soon as the berries have acquired their full red colour. If at any time any seedlings should appear they should at once be either pulled out or broken off. This system I do not pretend to set up in opposition to others that have been advocated in THE GARDEN; nor would I affirm that the largest heads can be produced from plants grown in the manner described. I only desire to show that good heads of Asparagus and plenty of them can be obtained in a much easier way than many believe, who, as I have already observed, are deterred from growing it owing to the elaborate appliances that are generally supposed to be essential to the growing of this desirable plant.

B. S.

NEW PLAN OF STORING POTATOES.

MR. HENRY IVES, an extensive Potato grower, of Genesee County, N.Y., where from twenty to forty, and sometimes eighty, acres devoted to this crop are common on individual holdings, describes, as follows, in the *American Cultivator*, his plan of keeping the crop through the winter, which he has found by experience insures all the advantages of the pitting system without any of its drawbacks:—

"The Potatoes are put in middling tight bins, of a capacity of from 50 to 500 bushels each, and, if need be, 3 ft. or 4 ft. deep in the heap. As soon as thus stored they are covered with a course of straw, which prevents the top specimens from turning green, and, besides, absorbs or aids in removing the moisture generated by the Potatoes. A few weeks later, or before winter sets in, draw a good load of earth—a light, sandy loam is best—and cover the straw 3 in. or 4 in. deep, which places the tubers in nearly the same condition as buried or pitted Potatoes. This operation is much more easily performed than pitting in the field, for a single load of earth is sufficient to pit over a bin of from 200 to 300 bushels.

"There are several advantages in this system of management. First the Potatoes are well-housed, and in such a location that they can be easily looked after at any time. Security against frost is maintained even if the cellar is cold. If wanted at any time for market or other purposes they are accessible on short notice. The fresh and crisp quality so much desired in Potatoes is retained in as high a degree as those specimens stored in pits. By this method of storage the percentage of shrinkage is far less than by the open bin method. In fact, I find in my experience that I save enough in weight alone, on the lots I sell, to pay me well for the extra expense of earthing them over. I recommend keeping the storage cellar quite cool. Potatoes stored by this plan do not sprout so early in the spring as those kept open in the cellar, but they should be uncovered early, since the sprouts will grow very rapidly on them after commencing. Potatoes thus stored retain their good quality as well as those in pits, while the grower secures the use of his cellar as a storage place.

"I follow the same practice in keeping all other vegetables, except Onions, in the cellar. In storing Cabbage, I first litter the cellar bottom with straw, putting on row after row of Cabbages, one course deep, with heads inverted, finally throwing the loam over them until nothing can be seen of them except the roots sticking up. The Cabbages can be taken out one at a time as wanted, without disturbing the balance, and will be found as crisp and well bleached as those which have been buried in pits. For the few Beets, Turnips and Carrots stored for family use through the winter, I use for convenience sake a few old barrels as places of storage, placing the roots carefully in the barrels and covering with half a bushel of earth to each barrel. In this way the quality of the roots will be much better preserved than in any other method."

This method of storing Potatoes and other vegetables is, doubtless, an excellent one, but Mr. Ives omits to say what material his bins are composed of, and how thick the walls are, and leaves the reader to assume that they are under cover. That is, of course, the great feature in the method, because it admits of free access to the tubers at all times and in all weathers, except when very severe frost prevails. The English plan of storing large quantities of Potatoes in exposed earth pits is very bad, but it is inevitable in the case of large growers, unless they or their landlords build special Potato stores. These might be erected cheaply, and should be on a deeply-drained situation. They should also have concrete floors, smooth and damp proof, and the walls should also be of concrete 10 inches thick, whilst the roots should be thatched so thick as to

exclude frost. At the door ends, trap ventilators should be placed to admit of a free circulation for air in all low temperatures. In fierce frost the external soil might be heaped against the walls; with this protection almost any amount of frost would be excluded. In a dark store, such as this would be, Potatoes would not green. It is light rather than air which produces that result, whilst the Potato in quality loses nothing. A. D.

PROPOSED VEGETABLE SHOW.

I HEARTILY agree with the suggestion respecting this matter offered to your readers by Mr. Gilbert, of Burghley (p. 82). Every gardener in the country who has a constant supply of vegetables to produce must see the utility of such an exhibition, and it is to be hoped one and all will give it their hearty support pecuniarily and otherwise. I will gladly give 5s. or more towards the funds, and I think some of the young men here would also subscribe, as this is a class which should bear in mind that matters of this kind are closely connected with them too. True it is that no one can boast of what the Royal Horticultural Society has done lately to encourage vegetable culture, but I presume they would not be averse to affording all other facilities so long as they were not called upon to layout or stand any chance of losing money in connection with the affair. In my opinion, August or September would be the most suitable month for a show of the kind, as I know that at many very early shows the majority of growers have not the appliances to force their crops in early or retard them very late. But at the time just named outdoor crops would be at their best, and all would have an equal chance to compete. The Manchester show must not be allowed to clash with it, nor the Potato show. Good prizes should be offered for various sized collections, as well as for single dishes of all the leading kinds of vegetables, salads, &c. Potatoes would, of course, not be left out, but should not be encouraged in undue proportion. If only a few cups or medals are offered they might be given to the exhibitors who secure the greatest number of prizes. This, I think, would be most satisfactory, and would be likely to lead to greater competition than if one individual could carry off such awards with only one exhibit. I feel sure that a national vegetable show only wants to be established and properly conducted to ensure its immediate and permanent success. J. MUIR.

Early Nantes Carrot.—This is an excellent sort for early sowing under glass, or on warm borders to succeed those raised indoors; the latter should be got in without delay, and those on borders next month. They may be sown moderately thick, as they are only meant for drawing in a half-grown state. They should have a slight hotbed consisting of leaves and stable litter, and about 9 in. of fine light soil. Sow in shallow drills 1 ft. apart, and water, weed, and ventilate.—J. GROOM.

Suttons' Magnum Bonum Potato.—We have recently heard that a trial made with this variety in this country the past summer has, contrary to expectation and the usual way with English sorts, given most satisfactory results, in both quality and quantity.—*American Agriculturist*.

MARKET GARDEN NOTES.

Hardy Plants.—There is a wonderful trade done in and around the metropolis in hardy plants. Perhaps of all market-garden products these are not only the cheapest, but to the growers the most profitable. At the same time they come to the purchaser with the original price in most cases less added to than is the case with fruits or vegetables, and, beyond the peripatetic hawker, they have fortunately to pass through but few hands. In all directions around London are growers of these simple hardy plants. Some grow specially for the markets, and send their plants, with other products. Others grow solely for the hawkers, and in not a few localities cottagers having a strip of ground to be put to the most profitable use fill it alternately with Daisies, Polyanthus, Pansies, single Carnations, or similar things, and as they do not sell to the hawker directly, they send them to the nearest large grower, who will often purchase their entire stock at a price paid down, and thus relieve them of further trouble as regards their disposal. How many hundreds of thousands of these simple hardy plants are annually sold it would be hard to say, but the number must be enormous. That they are largely sold in and about the metropolis there can be no doubt, and that in the little plots and pent-up gardens of our crowded suburbs they soon die there also can be little doubt, hence the continual demand for them, especially during the spring months. The hawkers cover a wide area, and dispose of their plant-wares in more rural districts; but how or where seems of little moment; the demand seldom varies, and is ever a large one. One good result is that much employment is found for very many needy persons.

"Jacks."—The horticultural philologist might find an interesting subject for enquiry in endeavouring to ascertain why and wherefore single Carnations in the hawking trade are called "Jacks." I place these plants at the head of this list because they are unquestionably the most aristocratic of a very low-bred section of the floral kingdom. The grower values his "Jacks" because they are, perhaps, in wider request than most other hardy flowers; the hawker values them because they represent something more costly than they were to him. The grower raises all his stock of these from seed, which is sown broadcast on a piece of good light soil early in April. There is some judgment required in saving a good strain. Amongst a large piece of plants at this time of the year, the experienced eye will select some having a compact, dwarf habit and broad, stout leaves. These are the plants from which to select seed. In time, by careful selection, a strain can be got that will only produce plants of this broad-leaved character, and then the saving of seed becomes easy. When the raiser of thousands of these single Carnations has his seedling plants strong, they are dibbled out into a well-prepared piece of good ground, where they remain and grow into good robust plants until the time of sale comes in the winter. For the sale of all classes of hardy plants a hard winter is inimical, but during a mild winter, such as the present one, sales of "Jacks" go on more or less largely without interruption. The hawker pays about 8s. per gross, or 8d. per dozen, for the plants, which are lifted generally without soil, placed thickly in shallow boxes without lids, and in these sent all over the country. I recently saw a consignment of 100 going to Wales, where, perhaps, the enterprising hawker finds a prosperous dealing ground. Arrived at their destination, the new owner of these plants carefully Mosses them up, ties the roots in the most approved trade fashion, and to each one attaches neat labels, upon which are written names culled from some good trade list. For these unsuspecting purchasers will be found at perhaps 6s. per dozen, a profitable price to the hawker, but still so low that the clever bargain maker, who knows that he would have to pay treble that price for good kinds at a florist's, is easily caught, and prides himself on his purchase until the flowers expand, when the deception becomes apparent.

Rockets.—Besides Carnations, there is one other plant that admits of some deception, and that is the single Rocket. There are more than one of these single kinds in which the foliage varies materially. The desired kind, however, has leaves so much resembling those of the double, that it becomes to the speculative hawker a source of wealth when found in quantity. The true double Rocket does not propagate freely, and it is never too abundant. Plants of it may be divided into three or so in the autumn, but that is slow work, and does not enable the massing of 1000 or so easily. The true double is also not so hardy as the single kinds; the crowns often suffer either from excess of cold or moisture, oftener, perhaps, from the latter, and ere the winter is over many of the plants are over too. This evil does not often occur in the case of strong stools in borders, but it is common where the plants are oft lifted and divided to make stock. The single kinds being more hardy and of freer habit may be faster propagated than the double sorts, and thus they deceive the purchaser. The double Rocket is a grand and sweet hardy border plant, and is cheap to any one who has it not at 4s. per dozen, but the market grower gets from the hawker about 1s. or 1s. 6d., as the case may be, whilst the single flowered plants go for 6d. per dozen. The double purple has very distinctive foliage, and cannot well be mistaken. It is, however, far too scarce to be found as a market plant.

Sweet Williams.—A love for laconic phrases and names is, I suppose, the reason why in the trade we hear only of "Williams" without the pleasant prefix which has been so long associated with this plant. Now, it is not the choice flowering strains that find favour with the market growers, and the hawker is as oblivious of the existence of Hunt's, Dean's, Barlows', or any other large-flowered strains as he is too often of fair dealing. The favoured strain is that having large, dark-coloured leaves, which have a conspicuous appearance in beds and borders in winter. This deep hue is in this strain probably the product of cold and want of light, for as autumn comes on it deepens, but in spring it vanishes. Sweet Williams cannot well be sold in flower, as June is not a hardy plant season, and therefore attractive leafage goes farther with the purchaser than prospective blossoms. Some of the good-flowered strains, however, are grown because almost anything in a good season will sell, but the dark kinds, some of which once received a first-class certificate at South Kensington under the designation of *Dianthus barbatus atro-purpureus*, are the favourites; of these all the flowers are dark red and of poor quality. The seed is sown in May, and the plants grown in open quarters as strongly as possible. This year a troublesome fungus has largely spotted the leaves, owing, no doubt, to the large amount of wet that has fallen. The usual selling price of "Williams" is about 6s. per gross. A. D.

THE INDOOR GARDEN.

BLACK PEPPER VINE.

(PIPER NIGRUM.)

AMONGST the cultivated species of Piper, that which furnishes common pepper is one of the most ornamental when in full fruit bearing, inasmuch as the fruits or berries are borne in dense spikes and are of a bright red colour when ripe. The plant is a perennial climber, hence the general term of Vine which is applied to it. It has jointed, branching stems, and broadly, ovate-stalked leaves, with from five to seven parallel veins or nerves running longitudinally. The flower-spikes are from 3 in. to 6 in. long, and the fruits, which succeed the flowers are sessile along the spike and bright red, as before stated, when ripe, which, however, changes to a dark brown or black on drying, and they form the well-known whole pepper of commerce. In its wild state the Pepper runs to a height of 20 ft. or more, but

Black Pepper (*Piper nigrum*).

under cultivation it is usually kept down to 10 ft. or 12 ft., and is trained on poles. It is a native of the forests of Travancore and Malabar, from whence it has been introduced into Sumatra, Java, Borneo, the Malay Peninsula, the Philippine Islands, Siam, and the West Indies. It prefers a rich soil, loves the shade of trees, and is often planted near their bases, so that it may climb up the trunks. It produces its flowers and fruits at irregular intervals, the berries taking a period of five or six months to mature. This plant was introduced to our stoves in 1790, but it has never flowered in this country. Though generally referred to as the Black Pepper plant, it is the source of both the black and white peppers of commerce, the only difference being that for the production of black pepper the fruits are simply dried and ground. White pepper is prepared by macerating the fruits, removing the outer coat and then bleaching the berry either by exposure to light or to the action of chlorine. It is apparent, therefore, that while white pepper has a better appearance for table use, black pepper has by far a larger share of the natural pungency, and is consequently more powerful.

JOHN R. JACKSON.

Kew.

The Earliness of Mr. Carmichael's Seedling Azaleas.—Having seen most of these flowers for several seasons, I can testify to all that is said in their favour in THE GARDEN (p. 34),

Other and newer seedlings from Mr. Carmichael and others promise to be yet earlier, several of them being in flower as early as November. These crosses are decided acquisitions. They promise new colours as well as greater earliness. The enlargement of the anther is not, however, all gain, and a pure white anther would prove one of the most useful plants for bouquets.—D. T. FISH.

DWARF CAMPANULAS FOR CULTURE IN POTS.

Few Alpines have afforded me more pleasure than some of the smaller Campanulas. During the past season the following have done well here grown in small pots in frames, the glass lights being used in very severe weather, but at no other time: *C. hederacea* (the Ivy-leaved Campanula) has small heart-shaped leaves and pale blue flowers on long foot-stalks; they are borne in great abundance, and though apparently fragile, they last a long time. *C. pulla* bears on a leafy stem one drooping flower of a deep purple colour; the segments of the corolla are very slight; the flowers, being chaste in form and turned gracefully down, render this one of the choicest of all the Harebells. *C. muralis* has a very dense habit of growth; the flowers are of a pale blue with darker markings from the base to the top of each segment; this has not grown very freely; perhaps it is not so hardy as some of the Campanulas. *C. garganica* seems nearly allied to *muralis*; it grows better in a greenhouse temperature than when fully exposed in a frame.

C. Zoysi has grown and flowered very satisfactorily during the past season; the leaves are oval, dark green, and very firm; they are smaller than those of any other Campanula. The flowers, as compared with the plant, are large. They are borne singly on stems from 2 in. to 3 in. high; they are of a pale blue, broad at the base, gradually narrowing to the throat; the segments of the corolla overlap the mouth of the flower, and are apparently closed to any but the smallest insects. *C. Waldsteiniana* has a very dwarf compact habit, and flower-stems from 3 in. to 4 in. high; the divisions of the corolla are widely expanded at the base of the petals; the colour is paler, which gives to the flowers a very lively effect. The cosy habit of the plant and the rare beauty of the flowers entitle this to a first place among the Campanulas. In *C. Langsdorffiana* the flowers rise to about the same height as those of *Waldsteiniana*; they are slightly paler in colour, and are borne singly on slender stems, the flowers drooping. Though worthy of cultivation, the flowers have not that persistency which is so valuable a property in *Waldsteiniana*. *C. isophylla*.—This, with its numerous wide open flowers of the sweetest blue, was one of the most satisfactory plants I had last season. The flowers are so abundant and so pleasing in colour that (until I saw a note in THE GARDEN a short time ago saying that *isophylla alba* was still more beautiful) I thought it about the best dwarf hardy plant in cultivation. *C. pumila* and *pumila alba* are perhaps not so amenable to pot culture as those I have named; *C. turbinata*, although so free and useful, is scarcely a fit companion for such varieties as *pulla*, *Zoysi*, *Waldsteiniana*, and the smallest growers. *C. Raineri*.—I have failed to have this in flower as yet. *C. Hosti* is said to be very good, but this I have not got. My acquaintance with the smaller Campanulas is very limited. Perhaps some grower of alpine will inform me if *Raineri* is more tender than the other Campanulas, and if there is in cultivation a white variety of *pulla* or *Zoysi*. I should also esteem it a favour if some one will name a few which they consider to be worthy of cultivation in addition to those I have jotted down in the foregoing notes.

Bury, Lancashire.

HUNTLY BROOK.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Brunsvigias.—I find it difficult to get these to flower. How should they be grown in order to get them to produce blossoms?—J. H. [On *Brunsvigia*, I find like similar bulbous plants, flower freely left undisturbed when once they get into good condition. I never force them, but merely keep them in an ordinary greenhouse temperature. I give abundance of water during the growing season, and keep them moderately dry when at rest, fully exposing them to sun and daylight. Under such treatment I have flowered *Brunsvigia Josephina* every alternate year, and sometimes every year.—CHARLES GREEN, Pendell Court.

Greenhouse Climbers.—Can any one tell me what climbers would do best in a cold greenhouse in South Kensington which gets sun till one o'clock? They will be planted in deep boxes. Are there any climbing Roses which will do in London? and would a Magnolia do any good?—G. A. J.

Anemone-flowered Chrysanthemums.—Amongst remarks on Chrysanthemums, how seldom do we find mention made of what many consider to be the prettiest of all, and they certainly are the most graceful of the whole, viz., the Anemone-flowered varieties, more especially those in which the flowers nearly approach the single form. I was more than ever struck with their beauty this season on seeing some plants of Acquisition, Bijou, Fleur de Marie, and Gluck among the larger flowered kinds, and Antonius,

Firefly, Dick Turpin, and especially Mary Stuart among *Anemone* Pompones. These had been allowed to grow in a natural manner, with the flowers but little thinned, and the result was a sturdy bush covered with charming blossoms, all the support needed being a stake in the centre, to which a few of the principal branches were looped up, so different from the trained monstrosities one sees so often. In our eagerness for large flowers the small kinds seem to be overlooked, and where the others are grown the practice of thinning the blooms is so universal, that the beauty of the plant is spoiled, whereas if allowed to assume their natural character, with a little judicious thinning, I venture to predict that the result would be so satisfactory as to insure its being followed in future.—ALPHA.

Narcissi in Pots.—Amongst bulbous plants easily brought into bloom at the beginning of the year, and in succession until they may be enjoyed out-of-doors, scarcely any are more worthy of extended culture than the various varieties of *Narcissus*, including the Jonquils. It is true they have not the brilliant colouring of *Hyacinths* or *Tulips*, but this is amply compensated for by their exquisite fragrance and the ornamental character of their foliage, a property in which many forced bulbs are deficient, and, above all, they are such robust-habited bulbs that their culture is of the simplest kind. Three bulbs in a 6-in. pot are excellent for vases, and single bulbs in 3-in. and 4-in. pots prove serviceable for mixed decoration. In potting, good, fresh, turfy loam, sand, and thoroughly decomposed leaf-mould or manure are the principal ingredients required. When potted in September plunge them in coal ashes, and the pots will soon be filled with roots, when they may be transferred to a cold frame and introduced to a warm house or pit according to the demand. They will quickly develop their deliciously-scented spikes of flower, and may be removed to cooler quarters in order to prolong their beauty. After they have done blooming they should be sheltered in a cold frame until the weather is warm enough to admit of their ripening out-of-doors. If not required for further service under glass we plant the bulbs in groups on the Grass or margins of shrubberies for permanent effect out-of-doors, for which they are extremely well suited.—J. G. L.

Ardiasias.—"What are they?" said a gentleman to me the other day when looking through the plant houses here. "What a good substitute for *Holly* they would make this season when the latter is so destitute of berries." The neat little plants that attracted his attention were in 5-in. pots with good heads of foliage, and well berried. They had been raised from seed sown in the end of February, 1878, and were from 9 in. to 1 ft. high. They were certainly very effective; in fact, most people who see them are struck with their deep shining green crenate leaves and bright red berries. I certainly think myself that they are superior to *Solanums*; there is a richness and refinement about them which *Solanums* do not possess, and they should be more largely grown than they are in these days of profuse plant decoration. They are perhaps somewhat more difficult to grow than *Solanums*, that is, they are a year or so longer in coming into use. They are, however, very easily raised from seed, take up but little room in the early stages of their growth, and only want an intermediate house or pit to grow in. They keep up their brightness of leaf and berry for many weeks together in living rooms if properly cared for, and go on every year throwing off a tier of berry-bearing branchlets a few inches higher than the preceding one. I grow them in a good ordinary mixture of top-spit turf, leaf-mould, and road sweepings, with a little bone dust added or Clay's Fertiliser. A crop can be raised from seed every year, so that plants of several heights may be had in full berry at the same time every season, and they are at their best in the dull season of the year when such things are most appreciated.—R. LLOYD.

Over-potting Plants.—As the season for shifting plants is now near at hand, I would caution amateurs against over-potting, for if the drainage is good a plant is much more easily kept in good health in a pot tolerably full of healthy roots, if well supplied with moisture, than surrounded with a mass of inert soil. Of course, when it is desirable to grow large specimens of rapid-growing and rooting plants like the *Coleuses* or similar soft-wooded plants, they must be kept regularly sifted, but in the case of hard-wooded plants shifting into large pots is a matter requiring both skill and care. I have frequently shaken plants out of their pots that have never rooted into the new soil, but were kept alive by the old ball of roots. When it is desirable to get up large specimens, if the plants are at all pot-bound the outer roots should be carefully loosened from the ball, for if shifted into a solid mass it frequently happens that the new and old soils never become firmly united, and more harm than good is the result.—J. G. L.

The *Eugenia jambolana* to which I lately referred is an avenue tree in Bangalore (Jamun in Hindustani), and bears a purple sub-acid berry, which, when ripe, is sometimes made into a jam, jelly, or

syrup, that acts as an efficient astringent in chronic cases of diarrhoea. The bark also is similarly used. In 1864, at Rampore Banleah, a fair quality wine was made from it, and said to be nearly equal to that made from the Grape. An attempt was made some years ago to dwarf the tree by taking off a long point from a fruitful branch, and so growing it with the object of improving the fruit. It was a failure, and no repetition of the trial was made. If the growth could be reduced to that of a shrub or dwarf tree, would it be possible to keep it so and improve the fruit at the same time? It is also called *Syzygium jambolanum*, or *caryophyllaefolium*. These are of the same Natural Order as the Rose Apple, *E. jambosa*, with a rose-coloured fruit, partaking of the smell of Roses, and from which a kind of Rose water is distilled. There are also *E. acris*, the Pimento tree, *E. acutangula*, and *E. racemosa*. But my enquiry at present is with respect to *E. jambolana*.—J. P.

ORCHIDS.

BRONZY-LEAVED ODONTOGLOSSUMS.

IF Mr. Roberts will look again at my communication (p. 593, 1880) on this subject, I think he will see that I did not state that a bronzy-leaved plant is either equal or unequal in health to a green-leaved one; I merely remarked the fact, that many growers, and good growers, had admiringly pointed out to me the bronzy hue of bulb and leaf as a sign of rude vigour rather than of over-watering, or, as Mr. Roberts is now pleased to state (p. 6), "loss of sap from deficient root action." To what agency would Mr. Roberts attribute the glorious mystery of the Purple Beech, the beauty of those bronzy-leaved *Dracenas*, which I so recently saw at Gunnersbury? or, to descend lower in the social scale of plant life, is it to injudicious watering, or to "loss of sap from deficient root action" that he would attribute the colour-beauty of, say, Dell's *Crimson Beet*? According to Mr. Roberts's own showing (p. 6), the bulbs of *Odontoglossums* may be bronzy and healthy; but he assumes that the foliage is less healthy if bronzy than if of a green colour. Will he kindly explain? "The two plants 'F. W. B.' has in one pot, the one bronzy and the other green, clearly proves that sun-bronzing is incorrect." This is an assumption which Mr. Roberts is pleased to make at random, since the peculiar circumstances under which the plants have been here grown happens thus far to have been unknown to him. My cool Orchids are grown on a front shelf in a lean-to house, and the pot in which the two *Odontoglossums* I specially alluded to are growing was so placed that the green-leaved plant was shaded by a deep, old-fashioned rafter, while the bronzy-leaved one was fully exposed to the sun. Hence, instead of helping Mr. Roberts in his argument in any way, it will be seen that my former statement is the more correct. As I before stated, all my cool Orchids are so potted that over-watering is an impossibility, and even if it were not so, I fail to see how one side of a 5-in. pot could be too wet and the other drier when my practice is to dip the pot—submerge it entirely in watering. As to the rooting, I find by experiment that either of the plants may be used as a handle by which to lift the pot, which I think even Mr. Roberts will admit is not a bad test. With further practice Mr. Roberts may find that even the "deep green colour" he so much admires is no sure index of permanent health in *Orchidaceous* plants generally, a fact especially pointed out by Mr. Snyers "in another place" not many weeks ago.

To avoid any further misunderstanding, allow me to say that it is abundantly clear to me that some individuals of *Odontoglossum* *Alexandre* have an innate disposition to become bronzy leaved, and that sunshine, even to a moderate extent, augments this tendency. I like to see the great stout bronzy bulbs surmounted by bronzy leaves, and am never satisfied until my *Odontoglossum* *veixillarium* exhibit that delicate purplish or magenta staining which foreshadows the hue of its blossoms, and which always reminds me of that rudeness of cheek which Sir John Gilbert gave us so beautifully years ago in his picture of the "Standard Bearer." F. W. B.

OUR ORCHIDS.

I do not either expect or wish "H. C." to agree with me that "Orchids are the easiest things imaginable to grow." A general collection of hard-wooded Heaths and New Holland plants require, however, far more skill and experience to grow them well than do Orchids, and there are not many cultivators who do not acknowledge this to be a fact. I have a great respect for Orchid growers, but there are many who have that name whose credit is due to the length of their employer's pockets rather than to their growing powers. I most deliberately repeat that where there are the ordinary conveniences for their culture, the requisite cultural treatment

itself is easy compared with that demanded by hard-wooded greenhouse plants. The plants I named were grown in the stove so called, but I did not say that what is usually considered to be a stove temperature was kept up. They were placed on the sunny side, and of course my gardener shaded them from sunshine when necessary, and carefully attended to the ventilation and other requirements. If "H. C." had travelled much around Manchester or Leeds he would have been very much enlightened by seeing Orchids growing luxuriantly under the most general of stove and even warm greenhouse treatment. Some months ago I called to see a business man, and while waiting walked into the garden. Among other Orchids in a warm house I noticed one which had been named *Cattleya Mossiae*. It looked so distinct, that I asked the gardener where he obtained it. "Bought it at a sale," he replied. "Pretty thing, isn't it?" I asked. "Yes," he answered; "it bears great yellow flowers as big as my hand, three or four on a spike." My suspicions were correct; it was *C. Dowiana*, and one of the finest plants I ever saw. "Who named it for you?" I asked. "Oh, it was named when I bought it," he replied. So here is a case of an Orchid having been well grown by at least two men who knew nothing of its generally supposed requirements—not even its correct name, and this is but a solitary instance of scores of such cases that exist in our gardens. So far as I am personally concerned, I would much rather employ a gardener to grow Orchids, when I knew of his powers as exerted on good fruit and flowers generally, than I would engage a professional Orchid grower for my place, where Grapes, Peaches, and vegetables are in great demand. I do not wish to influence "H. C.," and I do not blame him if his opinion be the reverse of mine.

Our *Cypripediums* were grown in wooden baskets last summer, suspended close beneath the glass and unshaded, and we never had so many flowers as now on *C. venustum*, and *C. insigne*, and its variety *Maulei*. As grown in the shade, they made longer leaves of a fresh green colour, but they did not bloom so satisfactorily. F.

COOL ORCHIDS.

HAVING made cool Orchids a speciality and particular study during nearly half a lifetime, it is doubly pleasing to me to find I am not alone in considering that many *Odontoglossums* will exist in a temperature of 45° as a mean during the winter months. My own plants have at times been subjected to a minimum of 35°, but I do not recommend beginners or the inexperienced to go so far as that. "A temperature of from 45° to 55° is not only enough," says Mr. O'Brien (p. 52), "but even a few degrees higher of artificial heat is positively injurious." I can fully corroborate this statement; indeed, I never feel the least alarmed if established plants of such things as *Oncidium macranthum*, *O. cucullatum*, *Odontoglossum Alexandræ*, and *O. Pescatorei* in variety, and many others too numerous to name here, do not experience a lower temperature than 35° at night. I would especially ask all beginners in Orchid culture, or those who contemplate beginning, to read over again that article on "Repotting Cool House Orchids," which appeared in THE GARDEN (p. 52) very carefully. Mr. O'Brien's experience put in his own clear way is especially valuable, and the following passage is particularly suggestive, as coming from one who has to make cool Orchid growing profitable as well as interesting. "Those (*Odontoglossums*) in the warm house are now not nearly so strong as those in the cold house, while their leaves are thin and papery, and they have an unthrifty look about them; those in the cold house, which has sometimes been down to 40°, are plump and shiny, their leaves thick and green, the pseudo-bulbs and leaves of many of the plants of *O. Alexandræ* and *O. Pescatorei* being tinged with that purplish hue so indicative of these plants being treated just as they require. Grown cold, these plants are, indeed, easy to manage; in heat they are an endless trouble with but poor results." I never yet met any one who saw the *Odontoglossum Alexandræ* at Ferniehurst, Yorkshire, as grown by Mr. E. Culley, who could boast of having finer or healthier or more floriferous plants. These were grown very cool—40° as a mean in winter—a fact which corroborates Mr. O'Brien's experience in every way. F. W. B.

Cypripediums at Belton Park.—Here I noticed, the other day, a group of these charming winter-blooming plants, tastefully arranged upon a raised bank in the conservatory. There were in all about 100 plants, and, on an average, each plant bore from twenty to forty blooms, all finely coloured and large in size, backed up by well-grown *Poinsettias*, *Camellias*, and *Oranges*. They had a fine effect.—H. A. M.

***Odontoglossum Edwardi* and *Phajus Humboldti*.**—I have these plants now dry. Shall be glad for any hints on their culture, also for description of their colour and number of flowers.

Has it yet flowered in England? Also for information on *Calanthe sylvatica*. When do they flower? and what heat do they require?—PRESIDENT. [*Phajus Humboldti*, being a native of Madagascar, will require a high temperature, and, like its congeners, will no doubt grow best in a shady position. Put the dry roots into pots or pans filled with small crocks, and when roots and growth show themselves pot in peat, Moss, and charcoal as usual.—B.]

PROMOTION FOR YOUNG GARDENERS.

PERHAPS you will permit me to allude in THE GARDEN to a subject which is of considerable interest to both masters and under gardeners, but which, so far as I can remember, has not before been discussed. I refer to the system very generally in vogue in gardens of engaging a strange foreman when a change of men becomes necessary. This practice is not now followed to such an extent, perhaps, as it once was, but I believe I am correct in saying that promotion is the exception and not the rule. In gardens where a number of young men are employed, all anxious to get on no doubt, it seems a positive injustice to place a stranger over their heads when a change in the foremanship occurs, and when, in all probability, the stranger is no better, if as good, a man as some one on the place, and who, as a matter of course, is better posted up in the general routine of work, while the stranger has to be initiated into everything, and may in the end prove to be the wrong man. I could name some very large places where as many as four strange foremen have been engaged and discharged in one year, the consequences being much inconvenience to the gardener and I am afraid also some undesired injury to the men. On the other hand, places could be named, in which every department is on a large scale, where the system of regular promotion has never been deviated from for a score of years, and the results have been most satisfactory to both masters and men. Nor is promotion confined to the foreman only, but begins at the bottom, every man getting a step up if he merits promotion when the first on the list leaves for a situation or otherwise. Promotion according to merit of course should form the mainspring of the system. Advancement "according to turn" is an evil practice that should never be adopted.

I am aware of several objections that may possibly be urged against regular promotion, but in actual practice they are found to be baseless. One common objection is that a man promoted from amongst his fellows never acquires the same command over them as a stranger would do, which is the sheerest nonsense. If a master knows his own place and supports his foreman to a reasonable extent, there will be no difficulty with the men, and I speak from experience, having a considerable number of them, the labourers amongst whom are recruited from one of the roughest populations in England. Another objection, and the only one which has any force, is that when it becomes necessary to promote a man over some one less deserving or less experienced, dissatisfaction or disappointment is caused, and sometimes inconvenience in other ways. My reply to this is that we generally employ some seven or eight young journeyman gardeners, but by making careful inquiries into their characters before engaging them at the outset, and owing not a little also to the understood arrangements with regard to promotion, it has been very seldom, over a long period of years, that I have had to dis appoint a man of promotion when his turn came; and when such a thing has happened some situation that he was better able to fill has been found for him who had been passed over. Like many other gardeners similarly placed, we receive numerous applications from young men from eighteen to twenty and twenty-one years of age, but the intimation that they must start in the kitchen garden and work their way up turns fifty per cent. at least away. All want to be foremen, or in charge in the houses. I might dilate further on this question in its moral and other aspects, but my purpose at present is only to direct attention to a matter, which I think further testimony will show, is one of no little interest to the younger readers of THE GARDEN. S. W.

Home Vegetarian Colonies.—To ventilate this question, as well as to raise interest thereon, I lay before you the following suggestions as lines upon which the scheme might possibly be worked: (1) The Vegetarian Society to secure a small estate in some fruitful and healthful district. (2) One or more model cottage farms to be laid out thereon. (3) Efficient instructors in vegetarian husbandry to be appointed to each. (4) Young men (vegetarian teetotallers) to be invited to a year's practical training under such tutorship. (5) Such students to give a year's labour in exchange for efficient practical instruction and frugal food—as I would gladly. (6) The rest of the estate to be divided into small plots of, say 8 acres, each lot to bear its cottage and outhouses, and rented or sold to the vegetarian farmers trained on the land. (7) A portion of

the land to be reserved for the founding of a village, where our wealthy members could reside, where central institutes, libraries, stores, and chapels could be erected. Please receive my name, under cover at present, as one who will do all he can to further and also take part in some such scheme in which vegetarian teetotallers may gather together in happier fellowship.—*QUALIS ERO SPERO*, in *Food Reformer*.

HADDON HALL.

A BEAUTIFUL old English garden, indeed, though very limited in size, very simple in plan, and now no longer under the gardener's care. Haddon, built at a period transitional between the days when the garden of the older castle was within the walls, and our own, when it extends freely around, its small gardens are happily not enclosed within the walls, but prettily terraced up against one side of the hill on its commanding bluff. First, we have a little simple terrace of Grass and a few borders well exposed to sun and air, and charming as a simple foreground to the beautiful old large-windowed wall, so well veiled with Ivy and climbers. Then, as the ground rises, a terrace supports it, and a few steps bring us into a small dense grove of Yew trees, which occupies the whole of the terrace, and forms a cool shade in summer. Immediately above this, as the ground rises again,

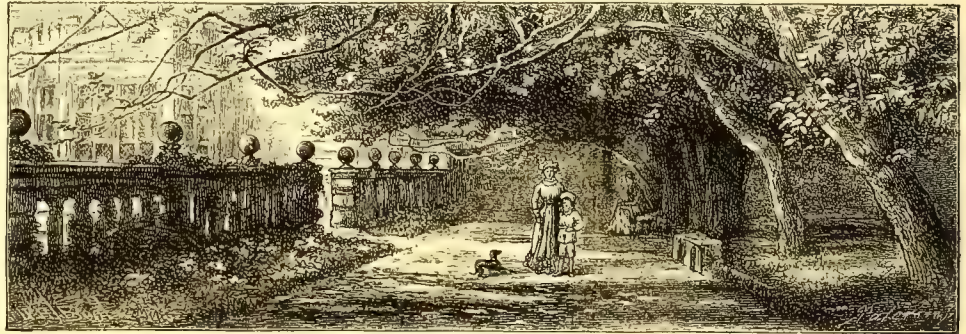
instructive, however, particularly from the simple grace of the lower terrace. W. R.

THE FRUIT GARDEN.

FRUIT CULTURE FOR PROFIT.

The Fig.

It is only in favourable situations that the Fig may be looked upon as a profitable fruit to grow. In the south of England it rarely fails to bear good crops of large luscious fruit. On the east



The Terrace.

coast, too, I have seen it do well, and in some parts of the midlands the result is satisfactory, and there is less difficulty in making the conditions suitable for Figs than for other fruits. Everywhere except in the south Fig trees make too much wood when left to themselves, and this wood does not ripen. Experience teaches us that the only way to secure a crop of Figs is to curtail and cramp

the roots, and in cold districts during cold winters to protect the wood. In ordinary winters a Fig tree with roots under control will not need protection, but few of us are weather-wise enough to tell beforehand when a sharp winter is coming, and so to be safe covering will have to be used every winter. Spruce branches will do very well secured to the wall. The branches of the Fig should be unnailed, and secured together in clusters, for then they are more easily protected; this need not be till November, or perhaps till after the first frost sets in, provided the materials for covering are all handy, as it is not often the first night's frost is a severe one.



Haddon Hall.

there is another simple terrace and little grove of trees—summer-leaving trees this time. Beneath their shade everywhere in early spring is dotted the little yellow buttons of the winter Aconite. Such is all the gardening, if gardening it can be called, of one of the most famous places in England, the whole not occupying half the space now often devoted to the garden of a villa. It is none the less beautiful and

Borders.—The most important point, however, in Fig culture is in preparing the border for the roots, and this should be done well. Shallow borders are best. I am, of course, not referring to the south, as there I have had excellent crops of Figs without making any special border. Somehow there they do not make so much wood; very little pruning is required, which may all be done in summer, unless it may occasionally be necessary to cut out a large branch for the purpose of getting up young wood. The

bottom of the border should be made impervious to the roots; on that hard bottom 8 in. or 9 in. of drainage should be laid, giving it an inclination to the front, where a drain 1 ft. deeper than the bottom of the border should be made, with a clear outlet into a main drain of sufficient capacity to carry off all water quickly. 3-in. pipes may be used in the drain in front of the border, and stones or brickbats should be placed on top of the pipes instead of earth. Good turfy loam should form the staple of the border, but some old plaster or the *débris* from old buildings may be added in proportion to the character of the soil, sandy loam requiring less than if it be of an adhesive nature; a few $\frac{1}{2}$ -in. bones will be beneficial, and these are all in the way of manure that will be required at first. Later on when the trees begin to bear freely, mulchings and top-dressings of manure mixed with wood ashes may be given about 3 in. thick every summer. Some cultivators recommend the border to be walled in with bricks to keep the roots at home, and in some situations this may be desirable, but in most cases this will be a needless expense, as if the bottom be made firm and dry the roots can be lifted along the front and shortened whenever it is desirable or necessary; and if a brick wall be built under ground, unless it be more than 9 in. thick, the roots after a time will bore through it. I have found the roots of Fig trees that had penetrated through a 14-in. wall.

Pruning.—The chief points in Fig culture are, first, a good sound, dry, firm border; second, early disbudding of the young shoots to let the sun and air have free play amongst them, at the same time keeping the trees well supplied with young wood, as the young shoots alone bear fruit. And to obtain this end it may be necessary occasionally to cut out a thick shoot or two of several years' growth to give more room for young wood to lay in, so that the tree may be fruitful all over its surface, and not merely at the extremities of the branches; and thirdly, protect in winter if experience in any particular locality has proved it to be necessary, using dry materials, such as bracken, Spruce branches, haybands, straw, or mats, but do not put the protection on earlier than necessary, and remove it by degrees as early as is consistent with safety. The Brown Turkey, the Brunswick, and the White Marseillaise are excellent varieties for open-air culture, being hardy and prolific. Figs will often push a second crop late in summer, but in our climate these are useless, and should be removed, as they only help to exhaust the trees unnecessarily, robbing those young fruits that are still snugly ensconced at the base of the leaf-stalks, and which will form the first and only crop that can be relied upon coming to perfection in this country.

Propagation.—Figs are easily propagated from cuttings or layers, also from suckers and seeds, but for increasing old established sorts the two first plans are the best. Cuttings 8 in. or 9 in. long taken off with a heel when the leaves fall in autumn, planted under a handlight two-thirds of their length, will root the following spring, and make nice little plants during the summer. If there is a frame and a little bottom-heat, the rooting will be effected more expeditiously. Figs transplant well; if the work be done carefully they do not seem to mind it much. Very old trees that are making too much wood may have their roots lifted clean out of the soil, and have a new border made under them with great advantage, although when this is done it is always best to reduce the head a little at the same time. The best time to lift old trees is in autumn, although I have, when the work could not be done then satisfactorily, transplanted in April when the sap was rising. A modified form of the fan and horizontal is the best way of training the shoots. Thus the shoots are led away from a common centre, as in fan training, and then brought down to the horizontal line and taken straight from that point along the wall.

The Grape Vine.

That our climate must have changed since the days when the monks possessed vineyards on many a hillside is, I think, certain, but it would take up too much time now to enquire into any of the causes that have led to that change, and such an enquiry must necessarily be somewhat speculative in its character. One of the causes why the Grape Vine as an open-air fruit has been neglected of late years may be traced to the introduction of cheap glass-houses. Every gentleman now has his Grapes all the year round grown under glass. At the beginning of this century more attention was given to the Vine on walls in the open air than it receives now. Then the best gardeners in the country directed their efforts

to its culture, and as a consequence better fruit was grown. Now it has disappeared from great gardens as an open-air fruit; cottagers and middle-class people have no good examples of training or management to guide them, and as a consequence evidence of neglect is everywhere perceptible. Example is, as is well known, better than precept, and if good examples of open-air Grape culture were plentiful, a stimulus would be given that would lead to improvement everywhere. Mr. Forsyth, gardener to George III., writing at the close of the last century, mentions a great many kinds of Grapes that he grew in the Royal Gardens at Kensington. He also states he sent in for the use of the royal family 378 baskets of open-air-grown Grapes in one season, each basket weighing about 3 lb.; he mentions, too, that many of the bunches weighed over 1 lb. each. The best cropped and managed open-air Vine I have seen this year is in a clergyman's garden in the Fens, and is full of young wood. This is, I believe, the great secret in open-air Grape growing—keep working up a constant supply of new wood. But there must be space allowed for each shoot and leaf or the wood will not ripen. The Grape Vine thrives best in a warm dry calcareous soil; and when planting a Vine we should try to meet its wants as far as possible. A south aspect is indispensable to obtain the best results. I have often met with Vines on eastern and western aspects, and sometimes they bear good fruit, but none but warm sunny spots should be selected, as there are plenty of fruits that will do well on an inferior site.

Borders.—Where the soil is cold and adhesive the worst should be removed, an impervious foundation made, a bed of stones for draining 6 in. thick laid on the bottom, and a good drain led along the front to carry off all surplus water as it falls. On this the border should be made of good sound loam, rendered porous and calcareous by adding old mortar and plaster with the hair it contains. Parings of hoofs of horses from the blacksmith's, crushed bones, old woollen rags, and parings of leather from the shoe manufacturer are excellent things for putting in a Vine border; they are so lasting, giving off their strength just as it is required, and do not clog up the pores of the soil as ordinary manures do. Vine borders may either be made by instalments or all at one time; there is a difference of opinion about it. I confess I like to do the work by instalments, but I was talking to a Grape grower last spring whose opinion is entitled to great weight, and he said make the border all at one time; doing it by instalments leads to unequal settling and rupturing of the roots. I have stated both sides of the question, but I have never found any disadvantage from piecemeal work. If the site be rendered perfectly dry, the border may be from 2 ft. to 3 ft. deep, but it should not be less than the former or more than the latter, and it may with advantage in some instances be made partly above the level of the ground, and it should not be less in width than the height of the wall. The border may be made any time in dry weather when the soil works cleanly. I know but few people take all the pains I have here set down with their borders for Vines, and that and the neglect visible in the summer management are the reasons why they do so badly. I often hear people say, "Oh! we can't fight against the climate," but we can if we like, and although we may be sometimes worsted in the struggle, yet I am convinced a gratifying amount of success will be obtained. If the roots of a plant are kept in a comfortable state and the right kind of food placed within the plant's reach, if we so regulate the branches as to give a proper balance to the plant, maintaining a regular flow of sap to all its parts, keeping up a constant succession of bearing branches by cutting out a certain proportion every year, and training up young shoots to take their places, I am sure that a change for the better would soon be visible in open-air Grapes.

Planting and Propagation.—The best time to plant young Vines is when they can start into growth at once, that is to say, between the first of June and the end of August, and this will necessitate their being started in pots or boxes, or brought forward in sods of turf. I prefer the latter plan if the young Vines are raised at home, which is the best plan to adopt. The wood containing the eyes should be taken off at the autumn pruning, selecting only those that are strong and well matured, laying them in earth in the open air to keep them fresh. About the 1st of March as many fresh sods of turf should be cut as there are eyes to plant, and they should be about 6 in. square by 4 in. thick. The eyes or buds should now be cut out, leaving about $\frac{1}{2}$ in. of wood on each side, cutting in a slanting direction from the base of

the bud on the opposite side to it. A small hole should be scooped out of the centre of each sod, the eye or bud pressed firmly in, and the cavity filled up with light rich soil. When all are planted place them close together in a close frame. A little bottom heat if it can be had will be of great service, but it is not indispensable, as the eyes will grow in a perfectly cool frame with no protection beyond the glass lights. A gentle bottom heat will cause an earlier growth; and that doubtless will be an advantage. The sods containing the eyes must at all times be kept moist, not positively wet at first, but just moist, increasing the quantity of water as the growth bursts forth and the young plant has formed roots to rapidly draw up the moisture. Ventilation, too, must be given as required, gradually increasing the quantity of air admitted until the lights can be taken off and the plants fully exposed to harden them previously to their being planted out. A small stake should be placed to each plant when 6 in. high, to support it and prevent entanglement with the tendrils of others. When planted out, which should not be till the nights have become quite warm in June, a hole should be made, the sod placed comfortably in it, and the soil made firm over and around it. I have gone somewhat fully into the matter to show how very simple and efficient this manner of raising young Vines is. When Vines have to be purchased in pots, they should always be planted in March just as the buds are bursting, turning the plants out of the pots, and carefully unfolding the roots, laying them out straight in the soil, covering about 6 in. deep, and mulching afterwards with 2 in. in thickness of manure. Water must be given when necessary, and if young plants struck from eyes are planted, the shoot must be trained up vertically, unstopped, but if old plants are used, two shoots should be trained up instead of one. Pinch in all laterals during summer to one leaf, and in autumn, as soon as the wood is ripe and the leaves are changing colour, prune to within 3 ft. or 4 ft. of the base, or at least to firm hard wood. The next question to be considered is the space each Vine is to occupy, and this must be in a great measure decided on the spot, and that decision should be influenced by the various surrounding local circumstances; for instance, if the natural soil be good, and the bottom dry and warm, I should scarcely place any limit to the distance the Vines may extend. Let each plant cover as much space as it can, and in planting young Vines if we plant a number, perhaps one or two will display more vigour than the rest, and I should permit those sturdy vigorous plants to extend, gradually cutting away and removing the others. This is leaving the fittest to do the work. Acting on this principle, it will not matter much whether we plant 6 ft., 8 ft., or 10 ft. apart, although the height of the wall must be taken into consideration.

Training and Pruning.—At the end of the first year the young Vines will have one good stout well-ripened rod or cane. This was pruned early in autumn back to say 3 ft.; before the sap begins to rise in spring we train this rod vertically a short distance, say 1 ft. or 15 in., to form a main stem, and then lead it off horizontally at right angles to the left. As the buds break, one close to the main stem will be taken to the right a little obliquely, and others will be selected and trained up vertically; in short, the framework of the tree when finished will be composed of two main branches trained along the bottom of the wall with vertical branches radiating at about equal distances from them at about 18 in. apart. Disbudding should be commenced early, taking off the weak shoots when quite small 1 in. or so long, weeding out the weakest until only a sufficient number are left to furnish the wall with as many stout leaves as can find room for development. The leaves are the plant's most important organs, and should occupy most of our attentions. If they are weak and puny we shall have no fruit to boast of, but if large and leathery, good large bunches may be safely looked for, and good sized berries also. The bearing shoots should have their leaders pinched when two leaves beyond the bunch are perceptible, and all laterals should be pinched to one leaf, and no lateral growth allowed beyond. The winter's pruning should be done as soon as the leaves fall, and, as suggested in the early part of this chapter, lead up a few young shoots and take out a corresponding number of old ones every year, and so a continual succession of new life and vigour will be introduced. I have said nothing about thinning the Grapes, as this must be left to individual cultivators. Strong vigorous Vines that bear large bunches will pay for thinning their fruit most certainly, but if done at all it must be done in the early life of the berries, when the scissors can be worked easily and freely amongst them. Some people leave all

the bunches that show on a Vine to grow; this is a great mistake only one should be left on each shoot; the selection should be made as early as possible, and all weakly bunches not required should be removed.

Mildew and Sulphuring.—Vines in open air are not subject to so many diseases as when grown under glass. Mildew is the only thing that really causes any trouble, and this, if taken in time, may be easily dealt with. Sulphur is the best remedy, and recourse should be had to it as soon as the first white speck of the pest is seen. The sulphur may be applied in two ways, either mixed with water through the syringe, or dry in the shape of powder, being puffed on by one of those elastic distributors. The former is, I think, the best way of using it. Take a handful of sulphur, and mix it in a cup or some small vessel with water, and after the whole has been moistened, put it in a pail full of soft water; stir it well, and apply it with the syringe. But mildew does not often prove troublesome to a healthy vigorous Vine unless its wants have been neglected. Take, for instance, a border constructed in the manner I have laid down. If mildew ever attacks a Vine planted in it, it will be during a very dry season and the Vine has been starved for want of water. Vines growing in a well-drained border require a good deal of water, and if it is not given to them they must seek it somewhere, and in their search for it they get into difficulties. Give plenty of water in dry weather with some liquid manure occasionally, and syringe the foliage three times a week in hot weather about four o'clock in the afternoon, using clean soft water that has stood in the sun some hours previously. It will be gathered from what I have written that I recommend, as regards the pruning and training, the rod system, with a very faint mixture of the spur incorporated with it, and this I have found the best. The rod system, of course, is simple enough; it is just cutting out a certain number, and training up a similar number of young canes every year. When I say I recommend a mixture of the spur with the rod system, I mean that any fruiting rod that produces strong plump well-ripened buds close to the main stem may safely be left to bear another crop and have all the bearing shoots spurred back to two eyes.

Varieties for Walls.—Black Cluster, Black July, Frontignan, Esperione, Sweetwater, Miller's Burgundy, and Royal Muscadine. If some one with plenty of south wall surface would get together all the early varieties of Grapes and test them thoroughly, so as to select three or four of the earliest and most suitable for general planting, a very great service would be rendered. At present Grape growing in the open air is carried on without system, either in the selection of the varieties or their management. A hundred years ago better results were obtained, and I think one cause for this was because there was a better selection of varieties grown.

Grapes under Glass without Fire-heat.

Grape culture under glass is a very large, many-sided question, but my intention now is only to briefly glance at one of its phases not commonly thought or written about, but which I think may be advanced and extended with advantage. With me this is no new question; I have often thought about it years ago when the idea of covered farmyards was first broached. I thought the time would come when glass could be cheapened and strengthened; when improvements in roof construction would do away with putty, and nearly with painting; when, in short, a glass roof would cost no more than one constructed in the ordinary way with tiles or slate either to build or keep in repair. Still looking onwards in fancy, I saw the time approaching when Grapes might be grown by the ton for wine making or consuming fresh, when every man, woman, and child if they felt inclined might try the Grape cure without going to France or Italy, but safe in our own dear old England. Paxton taught the architects how to cover in a large space cheaply with a system of small spans now called the ridge and furrow system, and with this plan a farmyard, or a range of cow sheds, or cattle stalls, or a stable yard may be covered with a glass roof, and turned into an orchard house infinitely superior to any thing yet constructed. The small scale on which our glass-houses have hitherto been constructed have made them so liable to sudden changes of temperature, but a large space covered will possess a superior climate suitable not only for Grapes, but also for Peaches, Apricots, and the choicer late Pears. A ridge and furrow roof will be supported with iron columns, and round the base of these the borders must be constructed, and the Vines and other fruit trees planted fenced in, so that cattle cannot enter.

With such orchard houses scattered over the land, a threefold object will be secured, a desirable shelter will be obtained for the stock in winter and spring, the manure will not have all the ammonia washed out of it by the rains, and if only moderate results are obtained with the fruit trees, the capital invested will pay a good dividend, and we shall be able to compete with foreigners at a time when the prices for everything rule high. I need not enlarge now upon the advantages the foliage will receive from the ammonia that is often floating in the atmosphere in the neighbourhood of a farmyard where many animals' are kept, nor yet of the benefits that will accrue on a cold frosty morning in early spring when the Apricots, Peaches, and Pears are in blossom from the warmth of the animals' bodies snugly housed beneath the trees.

E. HOBDAV.

WRONGLY-PLANNED PEACH HOUSES.

THE arrangement of trellises for Peaches crossways in lean-to houses is so far from being new, that it is not at all unlikely to have been the plan adopted when this fruit was first grown under glass, as with the high price of glass then as compared with what it costs at the present day it might be supposed that whatever plan could be devised to give the most space for training the trees would be followed. As long ago as I can recollect it was the way in which the trees were trained in several places. When I was a youngster in the garden at Cloughton Hall we had two houses with the trellises standing in this position; they were good-sized structures about 16 ft. or 17 ft. wide, the trellises reaching up to the roof, and extending from near the front towards the back, so as to leave a fair path betwixt them and the wall. The trellises were about 6 ft. asunder, and the upper part of the back walls of both houses were covered with Peaches also; the houses stood then, as they do yet, due south. As to getting the wood ripe there was no difficulty, for the trees used to bloom and set so as to need thousands being thinned off. The position did not interfere with the health of the trees, for most of them were old and strong, and they were able to carry crops as heavy as if they had stood full front to the glass; but the fruit, except close to the roof as might be expected, was all but devoid of colour, and on that account the system was done away with.

In wide houses there can be no question that a greater surface can in this way be made available, and if there are trees on the back walls they are not so darkened as if the front trellis was in the same position as the roof; but nevertheless, until Peaches and Nectarines devoid of colour can be had equal in quality to such as possess the full flavour usually accompanying perfect colouring, and a handsome appearance is counted as nothing, it is not likely that this old discarded method will be restored. If the greatest possible quantity of fruit obtainable was the sole consideration, then there can be little doubt that trees grown in bush fashion, or half standards with bushy heads, would answer the end. Until within the last three or four years there was a house so filled at Ashton, near Preston, Lancashire (Mr. Birley's place). I saw this house—a high, moderately-wide lean-to—two or three years in succession when the crop was ripe, and for the weight of fruit within a given area I never met with its equal. The trees filled the whole body of the house except a pathway on the back, the branches being as close as consistent with their well-being. All that attention could do for them was done in every way, the fruit being as much exposed by removal of the leaves to let the sun reach it as was consistent with the healthy growth of the trees; but three-fourths of the crop was never more than half coloured, and on that account the house was cleared and planted in the usual way. An attempt at Peach growing in this manner is not unusual, but I never met with so good a result elsewhere, and wherever I have known it tried it has always ended in being abandoned for the ordinary trellis arrangement.

T. BAINES.

Cooking Dessert Apples.—Dessert Apples, like dessert Pears, are by far the best for cooking, but what tells against them with many is their small size, the choicest and highest flavoured being mostly small, but for all that there are plenty of others of superior quality that might be grown for culinary purposes instead of the acid fruits that have only size to recommend them for such uses. Do what one may with these by way of sugaring them the acidity will assert itself, but when the sugar is provided by Nature the flavour of a tart or pudding is always agreeable to even the most fastidious taste. The best Apple, where it will succeed, is the Ribston Pippin, which is not to be found in many gardens now, but fortunately we have a worthy successor to it in Cox's Orange Pippin, a variety that has most of the good qualities of the Ribston without the fault inherent in it of the trees cankering and dying out before

they reach any great age. Besides escaping that malady, Cox's Orange Pippin is a very free cropper, and should be planted largely where really good fruit is desired. Blenheim Pippin is likewise a fine kind, as is also Herefordshire Pearmain, and for late keeping there are none with which I am acquainted to equal Sturmer Pippin, which, in a cold room, may be preserved fresh and plump up till May, and when cooked excellent.—S. D.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Wall Space for Fruit Trees.—Geo. N. M.—Your selection of fruit trees is very good. Allow Pears on Pear stocks from 20 ft. to 24 ft.; Pears on Quince stock, 18 ft.; Plums from 20 ft. to 24 ft.; and Cherries from 15 ft. to 18 ft. To hasten the covering of your wall a trio of cordon trees might be planted in the centre of each opening. Pitmaston Duchess and Beurré Superfin as cordons on the Quince would give a worthy succession to Beurré de l'Assomption. May Duke Cherries also do well and become very prolific when trained as upright or oblique cordons.—W. C.

Orchard House Glass (p. 77).—S. A.—If you are right about the prices of the large thick glass you might use it with safety as far as the obstruction of light is concerned. Of course a great deal depends on the meaning of the term semi-transparent. If that means rough plate or fluted glass it may be used. The roof is the great source of light to the trees, and with both sides of the span glazed with good clear glass there will be sufficient light in such a house as you describe.—D. T. F.

Kempsey Alicante Grape—I planted a Vine of this variety in the spring of last year, but was disappointed in the fruit, the berries being small, with little flavour. What is its character?—SUBSCRIBER.

Keeping Grapes.—Mr. J. Sharp, of Bardney, Lincolnshire, cuts a large quantity of Grapes grown for the market, and has much success in keeping them in bottles in the now much used, but once much laughed at plan. He has stored as much as a ton at a time in this manner.

New American Grape.—Messrs. Caywood & Son, Marlborough, Ulster Co., N.Y., have sent us berries dried in the sun of their new white Grape called Duchess. The berries in question were in the condition of raisins, but sweet and wholly free from that foxy flavour which characterises many of the American Grapes. The Vine is said to be a rampant grower, fitted for outdoor culture in this country, and believed to be proof against the attacks of the Phylloxera. In short, Vines are offered free of cost for trial in this respect.

Bullfinches and Fruit Buds.—As soon as the buds begin to expand in spring bullfinches commence their attacks on them, and so rapidly do they clear a tree that if allowed to go unmolested they do an incalculable amount of mischief. During the winter they live on seeds or the buds of forest trees. I have lately watched them swarming about a large Birch tree almost covered with wild Clematis, picking the seeds from the downy heads of that useful climber; but a few sunny days will set the sap of fruit trees in motion, and then for several weeks they will exist on their buds, especially those of Gooseberry bushes, Plums, Damsons, or Cherries, and later on Apples and Pears. We have a fine lot of Thorns, and they generally clear the bushes of their bloom buds if not stopped by means of powder and shot, the only effectual remedy, as they are too daring to be scared in any other way.—J. G. L.

Vitality of Pear Shoots.—Some fifteen years ago, early in the winter, I cut a large lot of Pear scions of many varieties, and packed them away in a corner of my cellar in damp sawdust, using what were wanted during the winter. At the usual cellar clearing in May for some reason these scions were not thrown out. They remained as they were all that summer the next winter and until June 1 the following year, when on clearing the cellar I found a considerable portion of these scions looking about as fresh as when cut, over eighteen months before. I cut into them, and found them fresh and juicy; I went out and grafted off three varieties of them, and have living trees from those grafts to-day.—B. WIER, in *Prairie Farmer*.

Apple Guelton, as described in the *Bulletin d'Arboriculture*, appears to be worthy of the attention of English growers. It is said to possess the valuable property of flowering at such a late period as to place it out of the influence of late spring frosts. It is a vigorous grower, coming early into a blooming condition, and the fruit is not liable to be blown off by rough winds. It is of excellent quality, suitable from the moment it ripens either for dessert or cooking purposes, and keeps well until July. Apples of a vigorous, but fruitful habit, and flowering so late as to escape the spring frosts, are just what we require in this country, and any kind possessing such valuable qualifications should be looked after, and it would be better if raisers generally were to bear in mind these desired points, even at the risk of sacrificing somewhat of quality. The finest Apple is of no use to us if it cannot withstand our inclement seasons.—J. CORNHILL.

CHANGED TIMES.

I BOUGHT a little book on a London bookstall the other evening entitled the "Stranger's Intellectual Guide to London," by A. Booth, F.S.A., published by Henry Hooper, 13, Pall Mall East, in the year 1839, which interested me. Towards the end of the book there is something on the gardens of the metropolis, which, though defective, may interest your readers. It shows how very much in even such a comparatively short time both London gardens and the garden taste have changed. The author refers to a shilling book he wrote called the "Gardener's Guide to London," which I should be glad to see if I knew where to get a copy.

"PUBLIC NURSERIES.—The public nurseries near London are of a very high order, and generally superintended by men of intelligence and skill. Besides being remarkable for general collections of plants, many of them are distinguished for excelling in some particular departments, which are specified in the accompanying list.

Messrs. Loddiges' nursery, at Hackney, is distinguished above any others perhaps in the world. Their Palm houses are objects of great attraction, and so capacious, that in the centre of the building the visitor may easily fancy himself in the recesses of a tropical forest. Their show of Camellias is also very splendid during the season. The houses have an extent of a mile and a half of walks!

Messrs. Rollisson, of Tooting Nursery, have perhaps the best nursery collection of Orchidaceous plants in the kingdom.

Mr. Groom's Florists' Nursery, Walworth, is a very old and well-conducted establishment, particularly famous for Tulips, of which he has about 250,000 bulbs. These are open to the public as an exhibition during the flowering season; and the charge of admission is one shilling.

Messrs. Chandler's Nursery, at Vauxhall, is famous for Camellias; and their exhibition in the flowering season, which extends from March to June, is a great source of attraction to florists.

Battersea.—Mr. N. Gaines; Heartsease, general plants.
Bethnal Green and Cambridge Heath, Hackney.—Messrs. F. and A. Smith; Dahlias.

Blackheath.—Mr. Hally; Chorozeas, New Holland Plants, general collection.

Berkhamstead, Great.—Messrs. Lane & Son; principally Roses, for which they are the most successful competitors at the London exhibitions.

Brixton.—Mr. Dixon; an extensive grower of Auriculas, and florists' flowers generally.

Brompton.—Mr. Ramsey; general collection.

Camberwell.—Messrs. Buchanan and Oldroyd; very successful and tasteful landscape gardeners, in which they have had great experience. General collection.

Camden Town.—Mr. T. Ansell; Dahlias, general collection.

Chelsea.—Messrs. Dennis & Co.; collection.—Mr. Catleugh; Geraniums, a most successful grower.

Cheshunt.—Messrs. Paul & Son; Roses.

Clapham.—Mr. J. Fairbairn.

Clapton.—Messrs. Low & Co.; New Holland plants.

Ealing.—Messrs. Mountjoy & Son; Heartsease and Geraniums.

Eaton Square.—Mr. Rogers; general collection and cut flowers.

Hammersmith.—Messrs. Colley & Hill; ditto.

Hornsey Road.—Messrs. Back & Smith.

Islington.—Messrs. Pamplin & Son; Dahlias.

Kensington.—Mr. R. Forrest; forest and fruit trees.

Kingsland.—Mr. W. Alexander (Lamb Farm); Ranunculuses and florists' flowers.

New Cross.—Messrs. Cormack & Co.; general collection.

Paddington.—Messrs. Hogg; Pinks and Picotees.

Richmond.—Mr. Steele; Camellias. The house adjoining the nursery is that in which Thomson wrote his "Seasons."

Slough.—Messrs. Thomas and Edward Brown; pleasantly situated on the Bath Road, within five minutes' walk of the Great Western Railway station. A general collection of greenhouse and hardy plants, shrubs, fruit and forest trees; and extensive collections of Tulips, Dahlias, Ranunculuses, and Heartsease are cultivated.

Woolwich.—Mr. N. Norman; Dahlias.

The Pantheon Conservatory, in Oxford Street, under the care of Mr. Rutherford, contains a fine collection of exotic plants. An aviary and fountain have a good effect.

Covent Garden Market is well supplied with flowers during the season. The conservatories of Messrs. Bunney, of Kingsland, and Messrs. Cormack, of New Cross, are objects of attraction.

PRIVATE CONSERVATORIES AND GARDENS.—Several of these in the neighbourhood of London are, by the liberality of their proprietors, easily accessible to strangers. Worton Lodge, near Isleworth belonging to Mr. George Glenny, is rich in general collec-

tions. This present season the great object of attraction has been a fine plant of *Doryanthes excelsa*. The grounds are open to persons on Sunday and Monday by producing their cards. The gardeners are Mr. Vernon and Mr. Plummeridge. Mrs. Lawrence has recently taken Ealing Park, which will be an object to visitors, her grounds being under the management of Mr. Butcher; and Mrs. Marryatt's gardens at Wimbledon, under the care of Mr. Redding, are easily accessible. Amongst others may be mentioned the gardens of the Rev. Theodore Williams, at Hendon; Mr. G. Ridge, at Morden, gardener Mr. Upright; the Hon. Baron Dimsdale's, at Camfield Place, Herts, which has a very good Orchidaceous house, under the judicious and able care of Mr. Dunsford; Mr. William Harrison, at Cheshunt, gardener Mr. Pratt, &c. The gardens of the Duke of Northumberland, at Sion House, with those of many of the nobility in the neighbourhood of London, may occasionally be inspected as matters of favour.

The principal Tulip growers in the vicinity of London, and who feel pleasure in exhibiting their collections to amateurs of similar taste during the flowering season, are, Mr. Goldham, of Islington, and Mr. Hayward, of South Lambeth, who are leading members of the Billingsgate Friendly Society of Florists; Mr. Glenny, Worton Lodge, Isleworth; Mr. Saunders, surgeon, at Clapham; Mr. Bowler, Albany Road, Camberwell; Mr. Percival, Holloway; Mr. Edis, of Islington; Mr. Clark, Coburg Road, Albany Road; Mr. Wakeling, Walworth; and the unrivalled collection of the late Mr. Lawrence, of Hampton."

There is also a curious account of George Glenny's "Royal Society and Central School of Horticulture and Agriculture," which long ago met the fate of many well meant institutions. What has become of the gardens of this society on the Great Western Road opposite Chiswick Lane, and the large flower hall which has recently been erected for the purpose of summer shows?

J. H.

THE GARDEN IN THE HOUSE.

ARRANGING AND PRESERVING CUT FLOWERS.

The art of arranging flowers gracefully and well is not so easily taught as their culture, for it requires an artistic eye to group them tastefully, yet fortunately they are so intrinsically beautiful that they can hardly be spoiled, though the best effect is not always attained. In America flowers are chiefly regarded as accessories, while in France and Germany there is no family fête without its graceful door wreaths, its garlanded picture-frames, and its coronals of flowers, and not a toilette without its appropriate blossom. In arranging flowers it is well to bear in mind the laws of worsted-work, and when we desire to adorn our rooms with flowers we should consider the "grounding" to be prepared for them, as if it were a cushion. Passion-flowers are peculiarly lovely when arranged with pale pink Roses, &c., but if white flowers are mingled with them, the effect is not pleasing. Rose colour and pale blue are exquisite when mingled; white, lilac, or mauve with primrose; dark blue with brilliant scarlet; cerise, or cherry, with white; dark purple with primrose, blue, white, and rose colour. The shade of green should, as a general rule, harmonise with the natural foliage of the flowers; if this is disregarded, it will tend to overpower instead of increase the brightness of the flowers. Very dark green looks well with only large, pure-tinted, heavy flowers, like Roses, Camellias, Dahlias, &c., although it will look well with white flowers of finer structure, if their texture is thick and waxy, and especially with wild flowers of the spring. The leaves of the scarlet Pelargoniums preserve many flowers by their velvety texture, which retains so much moisture, whilst their flowers will last well if a drop of gum-arabic is dropped into each. Carnations and Pinks are beautiful for floral decorations, and they keep their freshness for a long time. Verbenas and chrysanthemums are also very desirable. Hyacinths make exquisite vases, wreaths, &c., and double and single Tulips are ornamental in decorating mantel-pieces and tables. Anemones are unequalled for a dinner table, as the full blaze of light exhibits their striking colours to great advantage, and the gorgeous scarlet, pink, pale blue, and blue shading into white are perfect, but they require a soft mossy foliage of *Lycopodium* or Ferns. Azaleas are charming for every kind of adornment. There are no flowers more perfect for ornamenting the hair and dress, but they fade quickly unless damp blotting-paper or cotton is rolled around their stems. Roses of every shade are admirable; you cannot have too many of them. Stephanotis is ever welcome, its snowy, waxy, fragrant flowers being adapted for every floral ornament; and the same remark applies to the sweet Cape Jasmine, the Myrtle, and the Orange blossom.

Preserving Cut Flowers.—One great drawback to our enjoyment of cut flowers is the quickness with which they decay,

The moisture furnished cut flowers should be rain-water, and always of a moderate temperature. The water should not be changed, but every morning its evaporation supplied with more of the same temperature, to which, after a few days, a little aqua ammonia—five drops to half a pint of water—may be added. It is well to place at the bottom of the dish or vase a layer of broken charcoal about $\frac{1}{2}$ in. in depth—pieces about the size of small Beans. In placing the flowers, let them have as much room as they need to show themselves naturally. After a few days the stems should be examined, all decayed matter rubbed from them with a piece of flannel, and the tip of each end cleanly cut, and if any leaves or blossoms begin to look withered, those also should be cut away. Flowers decay much sooner when tied in bunches or bouquets than when arranged loosely. Too little air and too much water are the bane of most species. With most hardy plants, even if very long-stemmed, 2 in. immersion will give water enough if they have plenty of air. For short-stemmed flowers a mixture of damp sand and powdered charcoal in equal proportions answers very well, but care must be taken that the dish does not get too dry. The prettiest and best arrangement for keeping cut flowers in beauty is a dish of velvety Moss saturated with rain-water. When this Moss is brought from the woods, if a few fronds of Fern are taken with it and suffered to form a part of the foliage of the groups you will find them a charming addition. Place the flower-stems sparsely among the Moss, and here and there a branchlet of green or a leaf. Just inside the edge of the dish pour a very little water twice a week; and when any of the collection shows signs of decay, remove them and fill their places with fresh specimens; thus the dish may be kept filled with bloom and beauty for months. Small bouquets for the hand soon fade if no effort is made to give them moisture; but a wrapping of a bit of wet cotton or a few damp threads fastened lightly about the ends of the stems will suffice to keep them in good condition several hours in a close, hot atmosphere. Those who do not like the formality of a bouquet-holder, which this plan necessitates, can take a small vial, partly fill it with water, and place the flower-stems therein, and then cover the vial by tying a ribbon around it, just as they would the bare stems of a nosegay. Flowers used in decorating the hair and the dress can be kept bright and fresh in the same way. If flowers are to be transported any distance after they are cut, they should be placed carefully in a tight box. If the box is not perfectly air-tight, furnish it with a layer of damp Moss or wadding.

Reviving Cut Flowers.—Hot water will often revive faded flowers, even when every petal is drooping. Place the stems in a cup of boiling-hot water; leave them in it until each petal has become smoothed out; then cut off the coddled ends, and put them into milk-warm water. Coloured flowers revive sooner than those that are of a snowy whiteness, as the latter turn yellow. A cool room is best adapted to keeping flowers fresh. They will wilt quickly in badly-ventilated rooms, especially if filled with Tobacco smoke. Each flower as it fades should be taken away, else it will cause the others to decay.—*Harper's Bazaar*.

NOTES FROM CORNWALL.

Adiantum Capillus-veneris var. cornubiense.—This exceeds in beauty and grace even *A. farleyense*. The plant to which I allude was grown in a shallow pan in very sandy loam, with plenty of small potsherds well distributed on the surface of the soil, and I can safely say that if nine-tenths of your readers were to see it as Mr. J. Every (of Pendrea Gardens, Gulval) grows it, they would not begrudge 2s. 6d. for a plant of it. I cannot give in words the two shades of green which the fronds present, but it certainly is the handsomest of greenhouse or hardy Adiantums. Another very graceful Fern is *A. venustum*, the pinnules of which are very slightly dentated.

Plants in Flower.—I find I omitted to mention the following in my list of plants in flower December 25, 1880, viz.: *Jasminum nudiflorum*, *Ilex Aquifolium*, Pepper Cress, *Chrysanthemum segetum*, and *Scabiosa* (garden); *Pernettya angustifolia*, *Limnathes Douglasi*, *Yucca gloriosa*, and *Erica codonodes*. What a magnificent plant *Yucca gloriosa* is! Even when out of flower it is very ornamental, but when in full flower it is truly magnificent.

Onion Culture.—I notice in a contemporary a writer advocating the sowing of Onions on a much larger scale than market gardeners do at present, and although he advances very good reasons for so doing, I am afraid that at least our Cornish growers will never grow them to any great extent; there is, in fact, less Onion seed sown every year, and now that the price is much higher than it has been for many years, there will be still less sown. The Onion, moreover, is a very gross feeder, and cannot be grown on the same

ground for more than two or three years following; and, again, half the profit is taken away by weeding; therefore, the chances of making good prices are very small.

American Apples.—I was talking the other day with a nurseryman on the subject of English and American Apples; he informed me that if we get such a spring as we had some four years ago the Americans would have to keep their Apples at home, for they would not pay freight, leaving profit out of the question; for in the year mentioned English-grown Apples would not pay for picking, and were allowed to rot. What injured our Apple trees were the cold winds which we get early in spring, and which burn, as it were, the young shoots; moreover, our summers are often not sufficiently hot to ripen the wood and fruit.—*WM. ROBERTS, Penzance*.

THE LIBRARY.

"British Animals Extinct within Historic Times."—Though this book does not come exactly within our province, its peculiar interest for all who take a delight in the natural history of their country is evident at a glance. The author is an accomplished young naturalist, who has in writing this book most ably filled up the gap between Prof. Owen's book on our "British Fossil Mammals and Birds" and Mr. Bell's "British Quadrupeds," the former dealing with geological remains, Mr. Bell's book the existing forms. The present book concerns the animals that have become extinct during historic times; and both by the extensive reading in old records and complete scientific knowledge, Mr. Harting possesses all the qualities that could be desired in the author of such a book. He tells us of the bear, the beaver, the reindeer, the wild boar, and the wolf, there being extensive chapters devoted to each, with an appendix giving an account of the British wild cattle. Each chapter is adorned with a well-engraved and beautiful original drawing of the animal by Wolf. The book is well produced, and likely to be a standard authority on the subject.

JAPANESE GARDENING.

MAY I commend the following information as to Japanese gardening to your readers, especially to such of them as have always so glibly at their tongue's point the words "British enterprise" and "the enlightenment of the nineteenth century?" "Judging from a paper read at the last meeting of the St. Petersburg Society of Gardening, the Japanese must be allowed to have distanced us altogether in at least one branch of education. Enthusiasts in gardening would fain live to see the day when every householder will have his plot of garden and will know how to cultivate it. The universal spread of such knowledge seems to be almost as hopeless as the possession of plots for its exercise in our large towns. But the Japanese, M. Grigorieff tells us, are all taught gardening in their schools, and all have their little plots of ground. They are instructed in practical horticulture and in the artistic arrangement of bouquets, and all classes, from the palace to the cottage, manifest a passionate love of such humanising and healthful occupations. Nowhere in Europe, we are assured, are gardens so numerous, or the love of floriculture so extensively developed. One very curious art they seem to have brought to great perfection. Their gardens often being small, and their taste leading them to take pride in the possession of trees of the bigger species, they have gradually developed the art of dwarfing them without in any way sacrificing their general shape and proportion. Father and son and grandson will grow an Oak, for instance, for fifty years or more, and will take means of preventing it ever attaining more than 18 in. or 2 ft. in height, though still presenting all the characteristics of the full-grown tree in trunk, branch, and foliage. Among their family treasures to be handed down from one generation to another may often be found a well-arranged garden, established in some antique specimen of Japanese pottery in the shape of a capacious bowl. Within this receptacle will be walks and trees and flower-beds, with a great variety of floral favourites, all dwarfed to the proper proportions. One further development of this odd manipulation of natural objects is the patient training of the minified trees and shrubs into the forms of birds and beasts, or any other object that may strike the fancy, or may be suggested by the accidental shape of the plant, a refinement of gardening which in barbarism very nearly approaches our fashion of clipping shrubs into plum puddings or perpetually snipping trees that might become beautiful into close imitations of Gnippen trees." The above may

* By James Edmund Harting, F.L.S., F.Z.S., Author of "A Handbook of British Birds," "The Ornithology of Shakespeare," &c., &c.; with illustrations by J. Wolf, C. Whymper, R. W. Sherwin, and others. London: Trübner & Co., Ludgate Hill.

perhaps serve to quicken the understandings of English School Boards, so as to induce them to follow so good an example.

Bromley, Kent.

J. B. BROWN.

PROPAGATING.

Acacia armata.—This useful old-fashioned plant is best increased by means of cuttings taken off plants that have been cut back after blooming. February and March are the best months in which to propagate it. The cutting pots, 5-in. ones, should be filled about a quarter full of crocks, and then to within $\frac{1}{2}$ in. of the top with finely sifted soil, consisting of peat, a little yellow loam, and a good sprinkling of sand. Press all down firmly, and then fill up with sand. Sprinkle with a rosed watering-pot, and insert the cuttings prepared as here shown, tightening them well in. Plunge the pots half-way up in ashes or any other material on the top of a well and firmly made hotbed. If there is a superabundance of steam, leave a little air on for a day or two by tilting the lights with a small piece of wood. The cuttings must be shaded from sunshine, and they will be ready for potting off in about two months.



Cutting of *Acacia armata*,



Cutting of *A. oxyphylla*.

A. oxyphylla.—This is also best increased by cuttings made, as shown in the annexed illustration, of half-ripened wood in the month of March. Cut the plants back in January, and place them in a temperature of about 60°, keeping them well syringed twice a day, when they will soon push plenty of good wood for cuttings. Take of yellow loam and sand one half, and of peat the other half; well mix them together, and sift them fine; then fill well-drained pots with this mixture, first putting a little of the siftings over the crocks to within $\frac{1}{2}$ in. of the top; then cover with sand, and press all down rather firmly. Give a sprinkling with water, and after standing a short time, insert the cuttings with a small dibber, fastening them well in. They may either be placed on a gentle bottom heat in the propagating house with bell-glasses over them, or in a manure bed not too hot or steamy. If the former, the glasses must be wiped every other day; if the latter, they must be watched to see if a little air should be put on to allow some of the moist steam to pass off. They generally root in about six weeks in a manure bed, but under bell-glasses they take from two to three months.

H.

Gladiolus purpureo-auratus hybridus Frœbeli.—A single bulb of this interesting hybrid was sent to me at the commencement of last year by its raiser, Herr Otto Frœbel, of Neumünster, Zurich, for trial and comparison with the two hybrids resulting from a similar crossing of *G. purpureo-auratus* with one of the varieties of *G. gandavensis* raised and sent out by M. Victor Lemoine, of Nancy (and named by him Lemoinei and Marie Lemoine, already figured in Vol. XVII. of THE GARDEN, p. 306); and having grown them side by side during last summer and autumn under precisely similar circumstances and in identical soil, I find that Herr Frœbel's hybrid, whilst almost identical in colour and markings with *G. Lemoinei*, save that the individual pips are perhaps a trifle smaller than the French variety, is at least five times as quick to increase and a much more abundant bloomer than that variety, as while *G. Lemoinei* only made one bulb and produced a single spike of eighteen or nineteen pips, the Zurich hybrid made five good bulbs, besides a large number of bulblet offsets, and produced five main

spikes, with several laterals, which bore over 150 fine blooms, showing it to be altogether a most valuable and free-blooming acquisition for the decoration of our hardy borders.—W. E. GUMBLETON.

LATE NOTES AND QUESTIONS.

Plants for Tree Root-infested Borders (p. 83).—*G. G.*—The more you dig and manure such a border the more likely are you to be bothered with tree roots; it is only natural that they will ramify so long as fresh food is within reach. Hence it follows that it would be best to furnish the border with plants of a permanent character, and amongst such as would hold their own and always look neat are *Icies* and *Periwinkles*. If planted with these the appearance of the border would at least be equal to one furnished with the best flowering perennials, because of the struggle for existence that the latter would have, not to mention the feeding and attention that would be needed to keep them at all presentable, none of which would be needed in the case of *Icies* and *Periwinkles*. The ground-work might be formed with the common wood *Ivy* (*Hedera digitata*) and green *Periwinkle* (*Vinca minor*), to be dotted over at equidistant intervals with the best varieties of variegated *Ivy* and the variegated *Periwinkles*. All the attention necessary would be abundant supplies of water in summer, and a clipping over of the entire border once a year, the best time being immediately before new growth starts in spring.—W. W.

Trilliums.—*J. H. H.*—For many years past I have cultivated *Trilliums*, and have not experienced any difficulty in inducing them to thrive and also to flower freely, but they do not readily increase. It is difficult to give advice, unless something is known of the nature of the soil, &c., of the garden in which the attempt has been made to cultivate them. For instance, I know an amateur who is extremely fond of these and similar plants, but who nevertheless can do nothing with them; and for this reason—his garden rests on a bed of calcareous rock. The consequence is the drainage is so rapid that a few days or even hours of hot sun dries up everything. Now it is needless to say that *Trilliums* are utterly unsuitable for the embellishment of such a garden, because they require a moist, almost wet subsoil. The soil in which they luxuriate is rough peat, turfy loam, well-decayed manure or leaf-mould, and a liberal supply of coarse sand. This compost should be at least 18 in. deep. A slightly shaded position should be selected for them, as they do not like to be exposed to the piercing rays of the sun. When planted just on the outskirts of *Rhododendron* beds they do well, the *Rhododendrons* affording that amount of shade which is requisite. The finest development of *Trillium grandiflorum* I ever witnessed was in a natural bog, where there was fully 3 ft. in depth of rich bog earth, and which was liable at times to be inundated, but only for a short period, the water rapidly passing off. I am, however, unable to say how far the other species would thrive under such conditions.—P.

Mushroom Growing in Vineries.—In a Vinery, which will be started in the latter part of February or early in March, there is a space about 3 feet wide between the back wall and the footway. A flow and return pipe goes along near the wall, and underneath the footway is a brick chamber with a 2-inch flow and return pipe passing through it. Would it be possible if I filled up the space mentioned with horse-droppings to grow Mushrooms with any chance of success? The Vines are planted inside, but I do not think the roots can get into the space, because of the chamber running between it and the border. Would the ammonia arising from the manure be injurious to plants or Vines? Any information on these points will oblige.—*AGARICUS*.

Fuel for Saddle Boilers.—It has been said that saddle boilers are only suitable for coal (which is quite correct), and that if coke is used, the boiler should be directly over the furnace. I have not yet seen a saddle boiler set so as to give a regular heat from coke alone, and I have much practical experience in all forms of boilers, and the different fuels used for heating them.—*J. GRAHAM*.

Best Bedding Variegated Geranium (p. 83).—*B. II. S.*—Turner's *May Queen* is the best amongst white variegated kinds, the habit of growth being dwarf, and the flowers, which are of a rosy cerise colour, stand out well above the foliage. Amongst bronze variegated kinds for bedding, none in all points yet equals Rev. W. F. Radclyffe, and amongst tricolors the same may be said of *Sophia Dumaresque*.—*W. W.*

Tuber from Brazil.—Can any one tell from the following description what this tuber is? The flowers, which are of a rich rose colour, have long tubes of about 2 in. in length, and clustered together on a spike of 12 in. long, foliage dark green. The head of flower is surrounded by leaves something like a small Broccoli head.—*BERTHE*.

Scottish Seed and Nursery Trade Association.—The annual meeting of this association took place the other evening in the Windsor Hotel, Edinburgh, Mr. Downie in the chair. From the annual report, which was read by Mr. Hunter, it appeared that the membership numbered forty-two, and that there was a balance of £57 14s. at the credit of the association. At last yearly meeting the committee had been empowered to offer a prize of £5 for the best essay on the means of discovering the various forms of adulteration and admixture in Clover seeds, but for this no competitor came forward. No case had during the past year been submitted to the association for arbitration, but the usefulness of the association had been illustrated in cases of insolvency. In moving the adoption of the report, Mr. Syme referred to the ways in which the usefulness of the association might be increased in connection with cases of insolvency, and this subject, as also that of the regulation of the system of credit to customers, was discussed in the conversation which ensued. Mr. R. T. Mackintosh was elected president for the ensuing year, and Mr. James Hunter, Glasgow, vice-president, Mr. David Hunter being re-appointed secretary and treasurer. A new set of rules was submitted to the meeting and approved. The members and a number of friends afterwards dined together.

Index to The Garden.—Many correspondents having suggested that the general index to THE GARDEN should bring it down to the twentieth volume, we acquiesce in that view, and will act accordingly. The subscription list will remain open.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

THE WINTER-FLOWERING IRIS.

THAT was an unfortunate way in which "H." put his question about the true name of this *Iris* (*I. scorpioides*), since it has stirred me to tell him that though Mr. Baker has decided to call it *Xiphion planifolium*, there is a choice out of the following names, all of which, in addition to *Iris scorpioides*, have been applied to the same plant, to wit, *I. alata*, *I. trialata*, *I. transtagana*, *I. microptera*, *I. autumnalis purpurea*, *Juno scorpioides*, *Thelysia grandiflora*, *Thelysia alata*, and lastly, "*Clusius, his first or broad-leaved bulbous Iris*," besides probably other names which have escaped me, so that any one who is feeling his way to a knowledge of the plant may have the opportunity of buying the same bulb under about ten different names. Of all the bulbous *Iris*es it is, I think, the most difficult to grow. The advice given a number or two back "to buy a few bulbs and put them in the ground" was, perhaps, as good as could be given, for the probabilities are that a happy-go-lucky way of proceeding would be as successful as the most anxious pains. If I were a rich man, I would buy imported bulbs every autumn, pot them, flower them under glass, and then give them away to my poor friends, for it is a flower well worth having, beautiful in itself, beautiful especially at the time of year at which it flowers, and in a warm atmosphere sending forth a peculiar but, to my senses, delicious perfume. It is found wild in Algeria, where it flowers from November onwards; in Sicily and Sardinia, where it flowers from November to March; and in Spain and Portugal, where it flowers in January onwards.

It is perfectly hardy as far as mere cold is concerned. At the close of the severe frost last winter, I found a bloom starting from the open ground, and though the flower itself was rather damaged, the growth of the foliage in the spring showed that no real harm had been done. What upsets it in this country is the occurrence of intermittent rains. The proper treatment is that which I believe Mr. Ware adopts, to plant it in a well-drained, thoroughly sunnys spot, in rich, but not too heavy soil, and to *roast it as much as possible in the spring and summer*, putting over it if necessary a glass covering to keep the summer rains from it. In this way the bulbs ripen and consequently flower. Treated thus the plants will for the most part, I believe, flower in late autumn and early winter with yet earlier and later stragglers.

If you simply plant a bulb in the border in an ordinary way, its progress will be absolutely erratic. Sometimes it will die right off; sometimes it will flower in August, sometimes in March or April, or even later, or at any time between. Sometimes it will remain dormant for a great part of a year. Its peculiar fleshy roots, not unlike those of the Day Lily, show that it should not be disturbed much, and this is an objection to growing it in pots after the first year; but I am inclined to think that it might be managed by keeping it in the same pot for two or three years, top-dressing it heavily every winter. I have not as yet had sufficient experience with it, but I find this plan very useful for the closely-allied forms of *I. persicum* and *caucasicum*.

The flowers vary a good deal in tint and even in colour. There is said to be a major and minor form, but all the bulbs I have hitherto seen, some from Spain, some from Algiers, had flowers of about the same size.

M. F.

Scented-leaved Pelargoniums.—On looking through old books one is struck by the array of names of *Pelargoniums* which formerly were cultivated, and the question occurs, now that the Cape and other parts of Africa are being opened up, would it not pay to look after and re-introduce some of those quaint old plants that have been so long lost, as, to most of the people now living, they would be virtually new. Many of them will flower early in spring, which would add to their value. The scented-leaved kinds are very elegant for cutting sprays from for mixing with cut flowers, and I have often afforded invalids pleasure by giving them a few leaves of what they term the Oak-leaved *Geranium*, which years ago

used to be so common in cottage windows. The following is a list of scented-leaved kinds, all of which I have seen in cultivation within the last year, viz., *acetosum verum*, *cucullatum*, *Bridal Ring*, *Radula major*, *R. minor*, *betonicum*, *Shrubland Pet*, *Lady Scarborough*, *Lady Plymouth*, *cinereum*, *Prince of Orange*, *grossulariæfolium*, *glaucum*, *quercifolium*, *viscosum*, *Scotti*, *Fair Helen*, *inquinans*, *tomentosum*, *denticulatum*, and *Gem*. I have no doubt others might be added, and I should think it would pay some of our nurserymen to look these old plants up and catalogue them. Afterwards, perhaps, it might be well to look up the succulent *Cape species*, such as *Ardens*, *Echinatum*, &c., for they are very pretty. E. H.

ENGLISH FORCED LILAC.

I ENCLOSE a spray of Lilac, which we are now cutting in large quantities, to show you the distinction between English grown white Lilac and that imported. You will observe that although the blooms are nearly white the foliage is as green as that grown out of doors, and as we set nearly as much store by the foliage as the flowers this is no small advantage. We use it for furnishing vases, and most lovely and fragrant it is. We gather it in large bunches, with plenty of its own foliage, and drop it into a large vase without any addition in the way of Ferns or any other kind of garnishing, and I do not know of anything that is more appreciated from December to May than these delicately fragrant flowers. For dinner table decoration they are exquisite, and under artificial light look pure white. We find their own foliage the best garnishing. According to the French plan of forcing Lilac in the dark, the foliage is blanched as well as the flowers, and although we generally say that "They do things better in France," I must say that I like our own plan the best, for I like plenty of a plant's own foliage for garnishing, and think that quite half the beauty of the flowers is gone if divested of their natural greenery.

Not the least merit of this forced Lilac is the ease and certainty with which it is brought into flower at a given date. For our earliest crop to come in about Christmas we lift the bushes early in November. If very large, the tops are drawn together with a cord or tied up similar to a faggot, and then the bushes are dug up with a good ball of roots. They are then set in the corners of forcing houses, such as early Vineries, in which loose bricks are built up, so as to make temporary boxes for holding soil about the roots; they are then well watered and kept syringed like the Vines, when the buds soon swell up and open, or, if expressly required sooner, they may be pushed on by transferring them to the stove; the higher the temperature and more rapid the development the whiter the flowers are, but with a moderate temperature, such as that of a Vinery, the foliage, as before stated, will be stout and bright green, and the flowers will last a long time when cut. The largest bushes that can be got into the house are the best, for every flower-bud will produce a spike; our ordinary bushes bring several dozen sprays on them. Smaller plants in pots are beautiful objects for conservatory decoration. After they are done flowering they are gradually hardened off, and in April the old bushes are cut down low and divided into several small clumps for planting in the reserve garden for providing a stock for forcing again after three years' growth out of doors, as it takes a quantity of bushes to keep up continuous supply. The old-fashioned large-flowered Lilac and Charles X. are better for this kind of work than either the Persian or Siberian Lilacs.

Linton.

J. GROOM.

[The flowers sent were very beautiful, though not so white as some we have seen imported.]

Neapolitan Violets.—I saw (p. 623, Vol. XVIII.) that Mr. H. Cook had sent you samples of Marie Louise and Neapolitan Violets to mark the superiority of the former over the latter. Being a grower of both, I cannot let our old favourite the Neapolitan, which has done such good service for a number of years, suffer in popular estimation without a protest. I will allow that Marie Louise is a valuable acquisition and superior to the Neapolitan as an early autumn flowerer, but not to be compared with it for winter blooming after the middle of November. I have sent you a box of Neapolitans gathered from an ordinary two-light frame; you will find that many of the flowers measure $1\frac{1}{2}$ in across. For several years past I have been very careful when increasing my stock only to propagate from the sturdiest plants, which gave the largest and best blooms. By this means I have obtained a finer strain than is generally found in cultivation. Here the Neapolitan is decidedly the favourite, both for its colour and fragrance.—WM. ALLAN, *Guntton Park*. [Large and handsome Violets very fragrant—beautiful things from that bleak Norfolk at this terrible season.]

GARDEN THOUGHTS.

Bringing home my thoughts from the garden as it might be to the garden as it is, I find that a great transformation has been wrought during my absence (of mind) by a frost and a fall of snow. The brave Jasmine still mounts guard at my portals, with his gold lace slightly tarnished, but hunger has constrained the light brigade of birds to make an attack in force upon the red ranks of the *Pyracantha*, and, to borrow one of those powerful idioms which come to us across the Atlantic, it has very literally "chawed them up." Primroses and Violets, Aconites and Christmas Roses, Arabis and Vinca, are clad in robes of virgin white—a sleeping dress, not a shroud. What is to become of the poor frozen-out gardener? It is true that there is much which is very beautiful—the deciduous trees glittering in the sun, as though Nature, wearing all her diamonds, and such lovely lace as was never made by needle, had brought out all her plate, *epergnes*, and candelabra for some royal feast with the great Cedars, and Cypresses, and Pines, and Thujas, Lebanon, and Deodar, and Atlas, *Macrocarpa*, and *Nobilis*, Lawson, *Pinsapo*, *Borealis* stationed as *p-iquets* (I had written the initial *p* for policemen, when happily my quill took a higher flight)—*picquets* of Black Brunswickers to watch and guard; but the air is too cold for long admiration. "A new white world waiting for colour" is a charming thought, but after a time we wish the painter would come, and "frozen music" is a grand idea, but eventually we remember Munchausen's bugle, and begin to desiderate a thaw.

What is to become of the poor frozen-out gardener? He cannot imitate the example of the robin, who sits in the barn, and keeps himself warm, and puts his head under his wing, poor thing. What is he to do? Only to open a door, and, lo, "the winter of his discontent is made glorious summer,"—again the garden glows and fills the liberal air. Because, if I may venture once more to trot out, positively for the last trot, a quotation so hackneyed that it ought to be turned out to grass or to the knacker, "Who loves a garden loves a greenhouse too," and if he has one has the only reliable winter garden, from which, dry and joyful, he may call upon the elements, as poor Lear called upon them, drenched and mad, to "rumble their bellyfull." Honoured for ever be the memory of those statesmen who, in the year 1845, removed all duties from glass. They were benefactors to all the queen's lieges when those sham windows became realities, and mean peep-holes spread themselves into noble casements, and the light streamed into dreary homes, and the tax was taken from the merry sunshine; but they were special friends to the florist. Ah, what happiness is brought into many a hard life, into many a lone life, by that "bit o' glass!" What thankful smiles on those pale faces, which smile so seldom, have welcomed, in sick rooms and hospitals, their flowers and fruits! How many men have been kept from temptation, how much harshness has been softened, how much coarseness has been refined, how much truer thought and braver impulse, how much higher, holier ambition has been evoked in the little greenhouse at home! Some day I hope to revisit those miniature conservatories of the working men at Nottingham, of which I wrote in my book about the Rose, and if I do I will report results to the readers of *THE GARDEN*; meanwhile, let me tell from my own little parlour of posies how much enjoyment of beauty may be had in a very limited space.

Yet one or two thoughts ere I turn the handle. *Imprimis*, how thankful we should be not only for cheap glass, but

for improvements in construction, heating, and ventilation. Those were indeed Dark Ages in which our grandfathers—whose hearts were as warm, and whose heads were as well furnished as ours, who were quite as zealous and quite as skilful, according to their means, as we are—had dreary structures, which they called green-houses and stoves, like rooms, with no visible fireplace, lighted with long, narrow windows having wooden shutters, walled at the back, and often at the side ("the back wall," writes an authority in his day, "ought to be no less than three bricks length in thickness, or it can hardly be supposed to be powerful enough to guard the plants with sufficient warmth"), covered overhead with a foot and a half of sawdust, and a thick coat of mortar above it between the ceiling and the slates. A flue, one foot in width and two in depth, went from a fireplace at the back round the house; but some who could not or would not afford this luxury placed mats inside their windows when the winter was severe, and filled the space between the shutters and the glass with straw. But the appearance of the plants after a fortnight's darkness was not exhilarating; and when the frost was breaking up they seemed to think that they could not do better than follow the example of the frost. Some persons did commonly make use of pots filled with charcoal to set in their greenhouse; "but this is very dangerous," the chronicler writes, "to the persons who attend these fires, and I have often known they have been almost suffocated therewith, and at the same time they are very injurious to the plants."

But there were gardeners then who, out of their great love and brave industry, achieved with these poor appliances such beautiful results as would astonish those of our weaker brethren, who seem to think that their forefathers knew very little of their art. In these greenhouses, ceiled and shuttered, and, far more successfully, from their "bark stoves," because the roof, front, and sides were of glass, the back wall, 14 ft. in height, having seven flues one above another, and the centre containing the pit, filled with tanner's bark, in which the pots were plunged, and which was walled round, with just sufficient space for a path; in these, by thoughtful study, keen and constant observation, and devoted cultural skill, they induced their visitors from sunnier lands to look bright and happy as at home. "And so," writes one of those grand old gardeners, "by the proper collecting of the sun's rays, the heat of fermented bark, and the additional ingredients of real fire, we bring the air to that due temperature in which plants from the hottest parts of the world may live and flourish, and show themselves, in general, to as great perfection as they do in their own countries. And thus in our stoves we may at once behold the beautiful shrubs and plants that adorn the African coasts and the more inland and fertile parts of that vast country, the produce of the East and West Indies, the trees and plants of Jamaica and the hotter parts of America; and in these treasures, combined with those which we possess in our greenhouses, flower gardens, wilderness quarters ("The Wild Garden," about which I would earnestly commend a little book published by Mr. Murray), we may behold the principal produce with which the Almighty hath so beautifully enriched, and so wonderfully adorned, this globe."

It is interesting to read the names of plants grown in greenhouses and stoves more than a century ago, and to think what delight the owner must have had (for he was a *connoisseur* in days when men did not buy ranges of glasses, as they buy furniture, merely for show, and as "the thing to do"), he and his prime minister, the gardener, and their admiring friends, in

the Agaves, and Aloes, Amaryllis (double golden), Bignonias, Cactus, Cannas, Cissus, Crinums, Crotons, Gardenias, Geranium, Gesneras, Gloxinias, Hibiscus, Ixoras, Marantas, Oleanders, Oranges, Lemons and Citrons, Palms, Pancratiums, Passion-flowers, Plumbagos, Polygalas, Tamarinds, Rondeletas, &c. And it is curious to note how then as now many hardy plants when first imported were coddled in the stove and nearly killed with kindness. If plants are sentient, "and there are more things in heaven and earth, Horatio, than are dreamt of in our philosophy," how surprised they must be coming from their silent worship in deserts where no men abide to find themselves thus cherished and admired. The Candytuft and Portulaca went to the greenhouse, the Clematis and the Fuchsia ("there is only one species," we are told, "of this genus") to the stove, just as the Laburnum and the Lilac, as tradition goes, were at first cultivated under glass, and as I nursed my first plant of *Dielytra spectabilis*, for which I gave half-a-guinea. Adventurous spirits, observing habit of growth, and knowing something of climates, planted some of these immigrants in borders, and rejoiced to find that they "stood the winter." In my copy of "Hanbury's Gardening" (1771), in which are enumerated 172 varieties of greenhouse and 248 of stove plants, the original possessor of the book, the Earl of Moira, has made annotations to this effect. Of the *Ceanothus*, he writes, "This beautyfull shrub thrives better in the open ground than in the house, and is covered with white flowers from July to December—at least, mine are so;" of *Yucca aloifolia*, "this flowered in the open ground with me perfectly well;" and of *Buddleia americana*, "I have this in the open ground, where it shows its flowers better than in the house. No frost injures it, and its layers soon root."

Miller gives us a much more limited list of tender exotic trees and plants, beginning with the Acajou, or Cashew (it almost makes one sneeze to write it, and if *similia similibus curantur*, must be a sovereign remedy for hay fever), and including the Alligator Pear, the Bully tree, the Button Wood of Barbadoes, the Cabbage tree, the Calibash tree, the Coconut tree, Dumb Cane, Fiddle Wood, Hog Plum, Sour Sop, Sweet Sop, &c.

And now I must relieve my thoughts of an incident which, ever since I wrote in a preceding paragraph the words "breaking up" has been persistently demanding notice, tapping at my brain like a terrier scratching at a door. Talking with a friend in a street of Northampton, I saw two men meet close by. The one began to address the other, who, being deaf, put up his hand to stop him until he had produced from a case almost large enough for a violin an elaborate ear-trumpet, which being divided into several sections required some time to adjust. At last all was in readiness, and the proprietor, evidently expecting some pleasant communication, was informed in stentorian tones, "You're breaking very fast!" The remark was made without any apparent malice, merely as a matter of fact; and some would say that when there is no intention to give pain there is no fault to be punished. But "evil is done for want of thought, as well as from want of heart," and I think such evildoers might be judiciously kicked without injury to religion or law. I remember a similar case. A man asking his sick neighbour, "Would thee like to get better, Tommy Booth?" And when Booth "thought he should," informing him, "But thee mun dee this whet."

Enter now my green cot (house is too magniloquent) 9 yards by 4 yards. Here I have had a goodly show of Chrysanthemums—Japanese, English—including among the Pompones

that dear little *Cedo Nulli* who, with five others, won me a silver cup in the brave days of old at Nottingham; and now there is a bright display of Primulas, white and red, single and double; of *Cyclamens* first roused from their slumbers in my small stove, with their charming flowers, which always suggest to me the mitre of a Lilliputian bishop; of white Roman Hyacinths in pretty contrast with the bright red berries of the *Solanum* (some say from *solari*, to comfort, and there are few plants of a more cheery aspect); of the beautiful and bountiful Golden Daisy, well named *Etoile d'Or*, in happy conjunction with the vivid rosy flowers of *Azalea amœna*; there are a few prevenient blooms of *Camellia*, white and red; *Cypripediums*, which retain their quaint beauty all through the winter; the pretty *Begonia insignis*, *toujours gai*, with its fresh pink complexion and bright glossy leaves; the winter Heath (*Erica hyemalis*); *Cinerarias*; *Harbrothamnus*; *Eupatorium*; *Libonia*; the last of the *Bouvardias*, and the first of the Lilies of the Valley; Violets; *Mignonette*; and some plants of *Myosotis dissitiflora*, taken up from the borders in November and just showing colour.

The Poinsettias gleaming among the Palms, Ferns, and other foliage, like the royal liveries in Windsor Forest, the scarlet coats of the huntsmen in a covert of Gorse, or the guard of a mail in the olden time as it emerged from a *Fic* plantation, evidently consider themselves the "swells" of the stove; and they are very grand and brilliant. But we become accustomed to their splendour, like the boy who follows the tall, red-coated soldier on the slide with "Now, lobster, keep the pot a-boiling!" and though we do not lose our admiration, we find ourselves surrounded by a bevy of beauties, presenting their claims, payable on demand, for their due share of honour. There is the *Anthurium* (oh, those botanists! would it not be enough to make a child tie a cracker to that father's door who should name him "Flower with a tail?") the *Anthurium Scherzerianum*, raising its first bright vermilion spathes above its deep green leaves; *Euphorbia jacquiniæflora*, which always has a happy look and a summer smile on its orange-scarlet flowers; the tree *Epiphyllums*, in their roseate pendent loveliness, under which the fairies might erect a throne for her majesty Titania; the *Imantophyllum*, in its green and gold, accelerating its bloom for the greenhouse; the bright blue *Eranthemum*, well named *pulchellum*; two or three crimson *Amaryllis* glowing amid *Dracœnas* of all colours from white to black; a selection of *Coleus*, not large, but fresh and bright in colour; *Cocos Weddelliana* and half-a-dozen Palms; the best of the *Marantas*, as I think, *Veitchi*; *Alocasias* *metallica* and *Lowi*; some sleeping beauties, *Bougainvilleas*, *Allamandas*, *Stephanotis*; the velvety leaves of the first *Gloxinias* and *Gesneras*; and here, there, and everywhere the pretty trailing *Panicum* Grass. Beautiful, as with the beauty of holiness, "clothed on with chastity," bending her head in sweet humility, as though in His presence Who said "Consider the Lilies," the virgin queen of them all, the *Eucharis*!

S. R. H.

Cauntton Manor, Newark.

Prize Cups.—We have heard the remarks of our correspondent "Peregrine" (p. 90) concerning the objectionable nature of many prize cups offered for garden produce echoed by men who compete. They say they cannot afford to show for these cup prizes, the expenses of heavy collections, even of vegetables, being sometimes more than half the stated value of even a large prize; therefore the best men often abstain from showing, owing to the fact that a cup is offered instead of a money prize. We say nothing of the fact that the winner may have other uses for his money prizes than paying his expenses for waggons, railway carriage, and men to the show. Even in cases where the original value of the cups could not be fairly impugned, half or less than half may be offered to

the gardener who wishes to dispose of them, and who sometimes exchanges them for a teapot or some other article that he really wants. The same objections apply to the medal business. In all important prizes for which such objects are offered the winner should have the alternative of receiving his prize or its declared money value.

NOTES OF THE WEEK.

Brownea grandiceps.—In the Palm house at Kew a flowering plant of this gorgeous tropical shrub is just now by far the most remarkable object. This species is one of the finest of the genus, noble in habit and foliage, and truly gorgeous in flower. The Kew plant, which is some 15 ft. high, is surmounted by a huge head of pinnate leaves, each about 3 ft. in length. The flowers are borne in dense clusters from 6 in. to 9 in. in diameter, and enhanced by the surrounded masses of fine foliage. The clusters of flowers are borne at the extremities of the short young shoots produced from the main stem; hence they are pendulous, which relieves them of that lumpy appearance which they would otherwise have. It is a native of Venezuela, consequently it only attains perfection in a hot moist house.

Horticulture in Ireland.—Our letters from subscribers in Ireland have not been free from signs of the disturbance there. Some give up their papers owing to the uncertain state of the country. One man from Athy sends his subscription to show, he says, that there is still hope for "this troubled island." Another old correspondent gives up after a good many years' subscription because, he says, between the policy of Mr. Gladstone and the plans of Mr. Parnell, there is no certainty of safety here now for one's house, and, therefore, the garden must go to the wall. The most courageous sign of all is a subscription from the gardener of one of the most celebrated of the persons "Boycotted," a brave gardener who has not been frightened from his post.

Cape Aloes at Kew.—At this dull season even this interesting class of plants, that are often overlooked when flowers are plentiful, are attractive. In the Cactus house some few among the fine collection existing there are beautifully in flower, and will continue so for some time. One of the showiest is *A. supralævis*, of which there are some fine specimens some 7 ft. or 8 ft. high. The leaves, as is usual with these plants, are thick and fleshy, like those of the American Aloe, overlaid with a glaucous hue, and beset on the margins with sharp black spines. The flower-stem arises from the centre of this huge tuft of foliage, and overtops it about 1 ft. or 2 ft. The stem is branched in a candelabrum-like manner, and on each branch the bright orange-scarlet blossoms are densely arranged, strikingly reminding one of the flower-stem of a Flame-flower (*Kniphofia* or *Tritoma*), particularly the pretty *K. Macowani*. Two other species, *A. plurideus* and *A. chloroleuca*, are likewise gay with blossoms, but are scarcely so bright in colour as the preceding. In the extensive collection of succulents lent by Mr. Peacock, of Sudbury House, Hammersmith, and temporarily placed in one of the octagons of the temperate house, there are also a few kinds in flower. *A. Salm Dyckiana*, a rare species, is much in the way, as regards habit and flowering, of *A. supralævis*, though the colour of the flowers is somewhat of a deeper shade. *A. abyssinica* and *A. cæsia* are among other attractive kinds in flower; the former, a stemless sort, is particularly noteworthy on account of the abundance of yellow flowers that are borne on short stalks. Of the old and well-known *A. plicatilis* there is a grand specimen, which in a short time will be covered with multitudes of its showy blossoms.

The Large Conservatory belonging to Mr. Jay Gould, the great railway magnate of New York, was totally destroyed by fire on the early morning of December 11th last. It was located at Lindenhurst, Irvington, on the Hudson River, and was believed to be one of the finest structures of the kind in this country. It was built in the Moorish style of architecture, being 400 ft. long having lateral wings, and being 95 ft. in width at this point. It was also surmounted with a fine tower 90 feet high. The fire started near a chimney-flue, and at once defied all attempts toward extinguishment. The building contained a large and varied collection of rare and costly plants from Belgium, Australia, Brazil, South America, and other distant countries, including choice Palms 15 ft. high, two of which were recent importations from France and England. Rare foliage plants from the Tropics were also here, and two large consignments from the Emperor of Brazil in October, amongst which were elegant Tree Ferns 20 ft. high. In the building were 289 varieties of Palms alone, 45 varieties of Tree Ferns, 100 choice varieties of Cro-

tons, and 60 sorts of Colocasias and Anthuriums. The Rose house contained a fine selection of the choicest kinds, as well as the Pink house, and every branch was fully represented. Ferdinand Mangold, the head gardener, estimates the loss at 200,000 dols. The property was not insured. A large propagating house near at hand, containing plants valued at 4000 dols., was not destroyed.—H. HENDRICKS, Kingston, N. Y.

Showy Winter Gesnerad (Sciadocalyx).—This is a good addition to winter flowering Gesneraceous plants, so desirable for maintaining a gay appearance in stoves. It is of Continental origin, and is said to be a hybrid obtained by crossing *S. digitaliflora*, itself a beautiful plant, and *Tydaea pardina*, and the progeny strikingly partakes of the characters of both parents. The plants of it now in flower in one of the compartments in the T range at Kew are about 1 ft. or so in height, and are of an erect habit of growth. The tubular flowers produced from the axils of the downy leaves are above 1 in. in length and the exterior of the tube is covered with a bright red down, while the reflexed corolla segments are pale rose, copiously and regularly spotted with deep purple. It is, like the majority of its congeners, a native of South America, and flourishes only in moderately hot and moist houses.

Tea Farm in the United States.—The experiment of growing Tea in this country is about to be tried on an extended scale. The Commissioner of Agriculture, in company with an expert in Tea culture from India, has lately visited numerous sections in the Southern States where Tea plants had been sent for trial, and found the plants growing freely. Two hundred acres of land were finally selected at Summerville, South Carolina, near the city of Charleston, for the establishment of a regular Tea farm. This land is a part of the tract known as the Middleton estate, and is thought to be well adapted for the purpose. It has been leased by the Department of Agriculture for twenty years, and will at once be placed in charge of an experienced Tea grower. Seed from India is now awaited, and a portion will be sown as soon as it arrives. An appropriation of 5000 dollars was made by Congress last winter for the purposes of this experiment, and it is believed that Tea growing can be made a profitable industry in this country.—H. HENDRICKS, Kingston, N. Y.

Ainsliæa Walkeri.—This is a small-growing Composite with woody stems furnished with alternate linear leaves sharply toothed at the edges. The stems, which are about 1 ft. high, are terminated by a long, slender raceme of flowers, or rather flower-heads, as each apparent blossom contains three or more individual florets. These florets are white and very narrow, and, being singularly twisted, have an elegant appearance. It is not a showy plant, but remarkably interesting, as there are comparatively few of the vast family of Composites that partake of the habit of growth and manner of flowering of this species. It is a native of Hong Kong; therefore may be grown safely in a cool greenhouse temperature.

Anthurium Andreanum.—As an instance of the free-flowering property of this fine Arad, we may mention that a small plant of it in Messrs. Veitch's nursery is again in flower for the second time, and is altogether finer than that which preceded it. As an instance, also, of the lasting character of the flower, we may add that the flower in Mr. Bull's collection, which expanded for the first time in this country some two months ago, is still in good condition, the spathe retaining its brilliant vermilion colour.

Tillandsia Lindeni.—Of this beautiful Bromeliad there is a fine plant in flower in one of the stoves at Kew. It is not, we believe, what is considered to be the type of the species, but the form *cyanea*, of which there is an excellent coloured figure in THE GARDEN, Vol. XVII., p. 60. It has graceful tufts of reflexing foliage, from the centres of which are produced tall slender flower-stems. The flowers are borne singly or in pairs from the axils of the densely arranged bracts with which the upper part of the stem is furnished, from 6 in. to 9 in. in length, and are about 1½ in. across, and of triangular outline. The colour is deep ultramarine blue, while the centre is a clear white, which with the green bracts forms a fine contrast of colour. The true form of *T. Lindeni* differs from this in having the bracts wholly of a pink colour, and the flowers more of a purple hue. Both are extremely beautiful plants, and very desirable for cultivating in stoves.

Plant Labels.—The council of the Society of Arts are prepared to award a society's silver medal, together with a prize of £5, which has been placed at their disposal for the purpose by Mr. G. F. Wilson, for the best label for plants. The object of the offer is to obtain a label which may be cheap and durable, and may show legibly whatever is written or printed thereon; the label must be suitable for plants in open borders. These considerations will principally govern the award. The latter will be made on the recommendation of a committee which will be appointed for the purpose by the coun-

cil. Specimen labels, bearing a number or motto and accompanied by a sealed envelope containing the name of the sender, must be sent in to the secretary of the society, John Street, Adelphi, London, not later than May 1, 1881. The council reserve to themselves the right of withholding the medal and prize offered if, in the opinion of the judges, none of the specimens sent in are deserving.

Hybrid Greenhouse Rhododendrons.—It would be difficult to mention a more beautiful class of shrubs for the embellishment of the stove or warm greenhouse throughout the winter than the various kinds of hybrid Rhododendrons that have been raised by intercrossing *R. jasminiflorum*, *R. javanicum*, and similar species. At the present time several kinds are in full beauty in Messrs. Veitch's nursery, Chelsea, where they are highly attractive associated with forced flowers. Of the variety Princess Royal, the first raised kind, but still one of the most beautiful, there is a fine specimen bearing a score or more of its lovely pink trusses of blossom. Taylori, with rosy-pink flowers and pure white tubes, is to our mind the most delicate of all, and is, moreover, a free and perpetual flowerer. One of the deepest-coloured kinds is Duchess of Edinburgh, which has large deep crimson flowers, forming a striking contrast with Princess Alexandra, which has snow-white blossoms somewhat in the way of *R. jasminiflorum*, but larger both as regards the truss and individual blooms. These are the kinds at present in flower, and others will shortly follow, and will keep up a succession until far into spring and even into summer. Some of the best sorts of these lovely Rhododendrons formed the subject of a coloured plate in THE GARDEN (Vol. XVI., p. 394).

Azalea obtusa.—This, though an old occupant of our greenhouses, is still one of the prettiest of all the earlier flowering kinds, and we were much struck with the beauty of a large conically trained specimen of it which we saw the other day in Messrs. Veitch's nursery completely covered with flowers. The latter are small—in fact, no larger than those of *A. amena*, but far more delicate in colour than that kind, being of a clear cerise, a tint very uncommon even among the many shades of colour to be found among Azaleas. It is so valuable for early forcing, that it has been propagated in large quantities and grown into about the same sized plants as those sold of *A. amena* for that purpose. It is somewhat remarkable that such an exquisite variety should have been allowed to remain so long in comparative obscurity, for we know of few plants more worthy of being brought into more prominent notice.

White Laurustinus.—The white-flowered variety of the Laurustinus appears to have long been a favourite in Continental gardens, though it does not seem to be much known to us. It differs only from the ordinary kind in the unexpanded buds as well as blossoms being pure white instead of having a reddish tinge. It is extremely useful in winter, when white flowers especially are scarce both in the shape of small plants and in a cut state. In the Royal Exotic Nursery, Chelsea, it has this season been extensively grown for decorative and cutting purposes, and is found invaluable. The plants are grown in small pots, and are mostly standards with a well-flowered head about 18 in. across on clean stems about as much in height.

Large Bouquets.—I notice (p. 90) that you are finding fault with the unusual size of bouquets. But you must bear in mind before you get them made less that you must beat King Fashion. You truly say that ninety-nine out of every hundred would like them less, only its the fashion. I will give you a case in point. Last week a lady requested me to make a bouquet for a Royal Princess, adding, now remember it must be a large one; however inconvenient it may be, it is the fashion, and we must follow it.—K.

The Vine of Soudan.—M. Carrière devotes a good many words to show how little he, or anyone else in Europe, knows of this so highly praised Vine in Africa. There is some talk of its being introduced to commerce before long. It is a Vine found by an Eastern traveller, who describes it in very glowing terms as something very neat and very extraordinary.

Testimonial to Mr. Judd.—Mr. Daniel Judd, on relinquishing the charge of the gardens at Warwick Castle the other day, was presented by a few of his friends with an elegant timepiece and a handsome gold scarf pin. The timepiece bore the following inscription: "Presented to Mr. Daniel Judd by a few friends at parting, as an acknowledgment of kindness and as a mark of their high esteem and respect.—Warwick, December 29, 1880."

On Tuesday, the 18th inst., we had a real hurricane here until the evening when the wind ceased, and we had 26° of frost. Early on Wednesday morning the storm again began, and raged with all the fury of the previous day. The roads were blocked with from 3 ft. to 10 ft. of snow. Our keenest frost was on Friday, the 21st, when the thermometer indicated 30°.—P. DAVIDSON, *Shaftesbury, Dorset.*

READERS of THE GARDEN are respectfully requested to send the editor notice of any appointments to the charge of important gardens.

THE KITCHEN GARDEN.

EFFECT OF WIND ON ASPARAGUS.

IN 1838 I went to be gardener and forester to the late Earl of Wemyss and March at Gosford, and there I found a border which had been planted with Asparagus, but only a plant here and there was to be seen; in fact the Asparagus was a failure, and I was told that a dish of it could never be got; Lord Wemyss hoped I might be able to grow it, and as the soil seemed suitable I said I had no doubt that in two years I would be able to produce a full supply; I therefore set about the work at once. I bought two or three-year-old plants and they grew as well as I could wish, and also the second year, and of course I expected to cut plenty the following year; in April I endeavoured to ascertain if the heads were looking up, but to my surprise scarcely any were appearing. I selected another piece of suitable soil and planted again, and the same results followed. I lifted some roots and their points were black; I was beaten; but all at once I thought I had found out why it did not grow the third time as it grew first rate for two years, and as Gosford was close to the Firth of Forth, and much exposed to north-west winds, it occurred to me that wind-waving was the cause of failure. I therefore planted again for the third and last time about 1000 on well prepared soil, and they grew satisfactorily; as soon as they got strong, I knocked some stakes into the soil and run a lath along them and tied the stems to the lath, and in two years I had the best heads I ever saw, and in those days I used to compete at the Haddington horticultural shows. There the Asparagus was shown in twelve heads 8 in. long, and the weight used to be 14 oz. and 15 oz., fully 1 oz. each. The first year I got the first prize, the weight was 16 oz., and the last time I competed I also got the first prize, the weight being 22 oz. A dozen heads made a good dish.

Asparagus used to be Grown when I was in the ranks in beds, three rows being in a bed, and there was an alley of 3 ft. It used to be covered with manure during winter, and this was removed in early spring, but in my opinion the manure was of no use, as the plants cannot assimilate any of the juice of the manure when in a quiescent state, and the roots sustain no hurt from any amount of frost even when 5° below zero, but gardeners then went on as some do still in the same way, and never use their thinking powers as to what is right and what is wrong. My mode of growing it was this: I trenched the soil 2 ft. deep and put manure in the bottom, and in the soil tree leaves well decomposed, rotted short Grass and common cow and stable manure and mixed them well together, and planted the roots in single rows 3 ft. apart and 18 in. between each; this I found to be a better plan than growing it in beds as described for the following reasons: the soil could be kept easier clear from weeds and from snails and slugs which do it harm when in a young state, and it was easier to cut the heads than if grown in broad beds, and I can vouch that one single row will afford more good Asparagus than three in beds. Besides the other advantages just alluded to, I planted on the surface, and covered the crowns 4 in. deep also out of the alleys. I prefer planting when the shoots are to be seen, and then there are no blanks; if the soil is dry the plants should be well soaked with water, and they will require no more.

Soil.—Asparagus will not thrive on a strong soil if at all clayey, nor where the subsoil is clayey, and though it delights and luxuriates in a wet season, the less moisture it gets when in a state of repose the better; and where the soil is not suited for it, sand, road scrapings, or any light soil should be got; remove the strong soil, and if the subsoil is clayey it should be well drained or clinkers put into the bottom; and as a plantation may last for fifty or one hundred years if properly treated, it is worth all the labour bestowed on it. If these points are attended to Asparagus will grow as freely as Seakale.

The Cutting should be stopped the first week in June, and by that time Green Peas, Cauliflower, Turnips, &c., will be in use, and the beds should be raised above the ground level, so as to carry off superabundant moisture. When the cutting is over cover the ground with Seaweed, short Grass, or stable litter, and if no Seaweed is to be got, sow a little salt over the soil, and soot or guano is also a suitable manure for this esculent.

Gigantic Cucumbers.—Does not THE GARDEN know that General Mite and Lucia Zarate have been tried during the last autumn (regardless of cost) to stand beside megatherium Mangels, tremendous Turnips, gigantic Gooseberries, and stupendous Squashes as data for comparison between human and vegetable. Say no more—"in Cucumber-o-veritas."—F.

— I hope your correspondent, "Peregrine" (p. 90), is better

acquainted with mental calculation than he seems to be with the laws of perspective. I happened to see the house referred to about the time when the photograph to which he alludes was taken, viz., in August last, and I have taken the trouble to ascertain the measurements of the house, Cucumbers, and man. The length of the house is 69 ft.; width of path, 2 ft.; height from path to ridge, 8 ft.; height of man 4 ft. 9 in. The length of many of the Cucumbers was 3 ft., and one at the left-hand side measured 37 in. The camera was placed 2 ft. outside the door; the nearest Cucumbers would be about 4 ft. from the camera, the man 40 ft. With these measurements your correspondent might, after placing himself for a time in some Board School, get such an idea of the laws of perspective as to be able to calculate the correctness or otherwise of the photograph and engraving which he ventures to so freely criticise.—AN AMUSED OBSERVER.

NOTES AND READINGS.

What becomes of them all, we mean the plants and fruits that receive certificates from the Royal Horticultural Society? Some hundreds are certificated every year of species and varieties. Where do they go to? to the rubbish heap I fear a large proportion of them. There are now several irresponsible bodies who issue certificates in London, and Edinburgh, and elsewhere, and it is to be feared a great deal of second and third-rate productions are certificated good-naturedly by jurors and committees, while many things are also passed that are not any improvement whatever on existing kinds—Pelargoniums, Coleus, Begonias, Gloxinias, &c., &c. Buyers are perhaps as much to blame as any one for this state of things, for they are always ready to cast the last new production behind them and rush after the next like a child after a new toy. They have in a brief period passed through their hands into neglect or oblivion a whole host of fine subjects to make room for more recent introductions, many of them of far inferior value.

There is, however, another reason why many fine plants long ago introduced have been neglected, and that is because their culture has not been understood. The splendid Bougainvillea, for example, was in danger of passing into neglect, till almost by chance it was successfully flowered; since then it has been everybody's favourite. The Lapageria also, perhaps the grandest of all the greenhouse climbers, though introduced nearly forty years ago, was not long since a comparatively rarely-grown plant, and still seldom well grown, but it has recently become quite a popular subject now that we know how to grow it—has indeed almost become a necessity. The same may be said of many other things, especially among hardy plants, and notably the Lily and Narcissus, and other bulbs in which people are seeing quite new beauties and new uses.

At the present time a lively discussion which threatens to affect the whole horticultural press is going on on the subject of "root pruning," the main dispute being really as to whether root pruning has or has not the effect of promoting fertility in a tree. It is to be feared there is as much empirical writing at the present time as ever. Who would have expected in these days of dwarfing stocks, used with such certain effect, and for the same reason that root pruning is practised when every gardener is so familiar with the effects of "ringing" and barking, &c., in checking an exuberant growth and producing fertility that people of professed experience would be found who denied the effects of root pruning? Lindley, we fancy, would have cut short such a useless correspondence. In his terse language he tells us that the "effect of root pruning is to cut off the supply of food, and thus to arrest the rapid growth of the branches; and the connection between this and the production of fruit is well understood." In all that has been written lately not more has been said than this, nor has it been controverted.

Some of the communications on the subject of root pruning are entertaining. We read, for example, that "when trees are well treated from the first their constitutions are proportionally sound, and trouble in their management is proportionally less." A self-evident proposition this, one would think, and very like saying when a thing has been done it has not got to be done. This same writer's opinions "regarding the doctoring of roots to cause fruitfulness is that the extreme practice of some brings discredit on the system." Root-pruning, we are told paradoxically, is a "mutilation" of the

roots, which should be done tenderly, and the writer furnishes an account of how he once performed the operation upon a tree "that had been judged unworthy of a place" with such good effect that the tree afterwards became very handsome and fruitful. What he did to this tree, this advocate of "tender and judicious" practice, was to pull it over by the top in the training of it, "with the help of another, till the surface roots were snapped from the under ones," after which they were covered up and the tree did well ever after. This summary and successful operation was performed "in a well-managed garden in Middlesex," and the operator never after lost faith in root-pruning. This ready and tender way of "snapping" the roots might be adopted on a comprehensive scale by securing a team of horses first to one side of the tree to give it a tug, and next on the other, and so on all round till the work was done. To do the writer justice, he does not recommend this plan generally, but only furnishes the case as an example of how judiciously the operation needs to be performed.

We do not know whether the principle of the thing is any one's patent or not, but there can hardly be any doubt of the fact that the new system of glazing glass houses, by which the whole of the woodwork is enclosed, thus greatly reducing the cost of glazing and painting, and tending to the preservation of the woodwork in no slight degree, is a great improvement on hothouse construction. By this system the rafters and guts of the roof and sides of the house are really "slated" over on the principle of the roof of a dwelling house, and in the latter, as is well known, the wooden joists and supports are never either planed or painted, being perfectly secure from external moisture. Inside damp hothouses paint would, of course, be necessary, as heretofore, though it is the outside woodwork that requires it oftenest by a long way; but in dry structures, like orchard houses, by the covering-in mode of glazing, neither paint nor planing would be a real necessity, thus reducing the cost of erection considerably.

Hitherto the great disadvantage of dry glazing has been the "windage." The laps being puttyless and of greater extent, the house not only loses heat by radiation, but by the actual escape of heated air, just as it escapes by a broken pane or an open door, and this takes place to the greatest extent in windy weather, as the wind blows under the panes and lifts them up, permitting the warm air to escape in rushes, as well as letting the cold air blow in, but we believe this evil has been to a large extent overcome by the manner now adopted of fixing the panes so closely together as to make the seams almost impervious.

We have no doubt of the new Apple called "The Queen," which was exhibited before the fruit committee at South Kensington, being a good kind, and we are quite prepared to accept Messrs. Saltmarsh's statement that it is new, but we are really curious to know upon what independent testimony the fruit committee, after a second examination, "decided that it was quite distinct," and in consequence "confirmed the first-class certificate that it was awarded." If the committee had simply declared their acceptance of the raiser's account of the origin of the Apple, and given it a certificate according to its merits, there would have been nothing to wonder at; but to speak the truth, we doubt if any members of the committee are in a position to decide from their own knowledge whether any Apple or Pear which may happen to come before them is new or not. As the list of varieties amounts to hundreds, "decisions" as to what are new and what are not new must be accepted with some reserve. We had an opportunity of seeing some time since across the Channel about 1500 sorts of Apple and Pear trees "all correctly named," and a vast number of wax models of the fruit, and it struck us in both cases that there were many "distinctions without a difference." It is not desirable that the list be extended, except it be to embrace kinds of undoubted superiority.

Those notes of W. Falconer's (p. 26) bear the mark of one who knows how to observe, and clearly state his observations on a very interesting subject. The conditions of growth of many of the American plants we ought to know. So also of the trees and shrubs, some of which are little known here. Can he tell us the source of the finest scarlet Lobelias? At Kew this year one called cardinalis was a smaller flowered form and less brilliant in colour than the cardinalis so much admired. PEREGRINE.

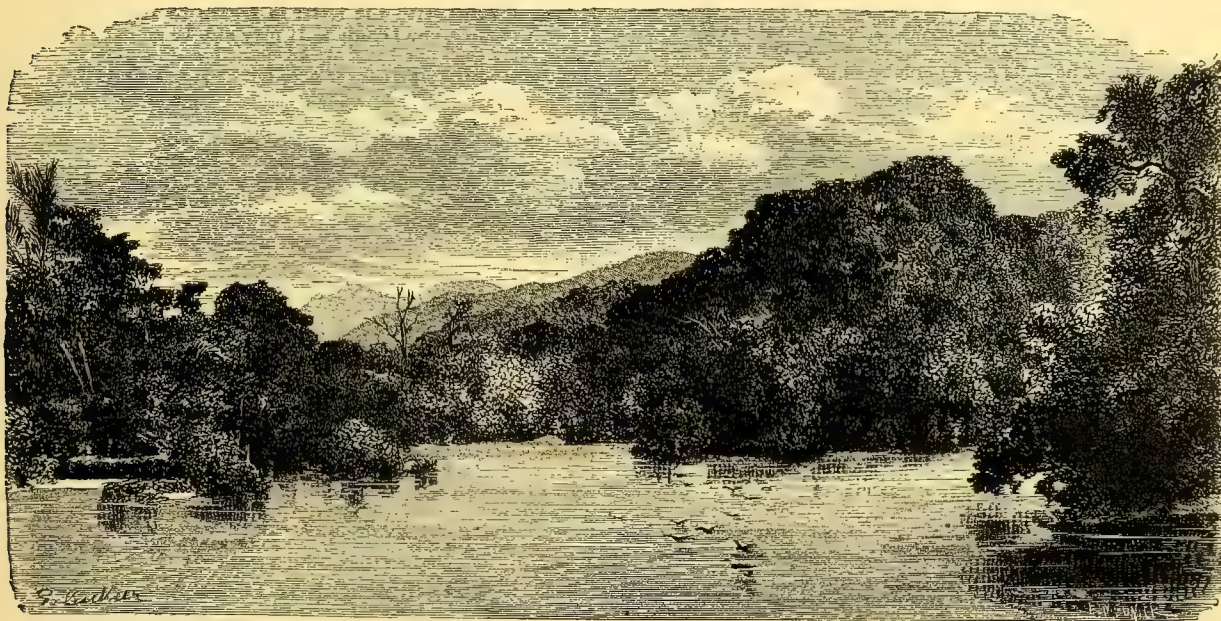
GARDEN DESIGN.

MARGINS AND TERMINATIONS OF ARTIFICIAL WATER.

In the home landscape there is probably no other feature more captivating or more productive of pleasing effects than water, whether it be a tiny streamlet, a rushing brook, a silent river, or the placid expanse of a lake. There is, moreover, no department of garden design that so much taxes the skill or so fully indicates the taste of the designer as the formation of artificial water, or adapting a natural supply to the exigencies of the case. The most obvious fault with most pieces of ornamental water is the unnatural bare margins, denuded of that characteristic plant life inseparable from natural water edges. Rich slopes of well-kept turf running to the water's edge have a decidedly beautiful effect, but even these become monotonous if not broken up here and there by groups or masses of well-selected trees and shrubs. A well-wooded and broken margin is indeed that which Nature employs, and which is well shown in the annexed engraving. Here, instead of the almost painful glare of surface unrelieved by

shrubs planted thereon, and the mode of planting some sideways and nearly horizontal, so as to lean towards the surface, considerably heighten their effect, and by their shadows give variety to the surface of the water. Too often in the planting of water margins an inordinate use is made of deciduous shrubs, which necessarily have a bare appearance for half the year, while a paucity of evergreen shrubs and herbaceous plants is apparent. Of water-side plants the list comprises many that would diversify the edges in summer, while among shrubs there are no better for water-side fringes than the numerous varieties of Pontic Rhododendron. In enumerating a few of the larger-growing of the herbaceous type that flourish near water, we need only name Loosestrife (*Lythrum*), Flag (*Iris*), Water Dock (*Rumex*), Tongue-leaved Crowfoot (*Ranunculus Lingua*), Meadow Sweet (*Spiræa*), various Grasses and Bamboos, Sweet Flag (*Acorus*), Gunnera scabra and manicata, Sedges and Typhas, and the Giant Parsnip (*Heracleum*); some of the latter have quite naturalised themselves on one of the islets in Battersea Park, and the fine effect which they produce in summer is much admired.

Another important consideration in the formation of artificial



A Lake with Wooded Margin.

shadow, which is the invariable accompaniment of water surrounded by bare and regularly sloped margins, we have a charmingly picturesque outline and a constant play of light and shade on the surface. Such beautifully diversified water-sides are, however, the exception and not the rule in ornamental grounds in which many examples of lakes could be pointed out that though held up as ideals of true design are in reality very deficient in that respect. Even the lakes in our London parks afford striking illustrations of the two extremes—bare and wooded margins. Contrast, for instance, the margin around the greater portion of the Serpentine in Hyde Park with that of the ornamental water in St. James' Park, than portions of which we could not cite a better example of what we consider to be the correct manner of treating artificial water margins. The lake in this park, however, possesses accompaniments that enhance its attractiveness such as few others possess, viz., the stately architecture which forms a background to it from nearly all points. The ornamental water in Regent's, Battersea, and Victoria Parks embrace in various parts much to admire with regard to the general outline and clothing of the banks and islets. In Victoria Park particularly the islets have been well managed, their inlets, bays, and projections all combining to render them picturesque and natural while the judicious selection of trees and

water is the concealment of the beginning and the end of the lake. If the whole extent of a piece of water be seen at a glance from any one point, half the effect which it would otherwise produce is lost. The head of the lake is generally the most formal and uninteresting, therefore considerable skill is required in order to give it a natural appearance; here deep inlets and bold promontories and islets are more essential than in any other portion, for where such exists the eye in scanning the margin get so entangled, as it were, amongst its intricacies that all idea of termination is unthought of, and the extent of the lake on that account apparently increased. Another reason why the head of a lake should be concealed as much as possible is in order to obviate the unsightly appearance which the surface scum and other rubbish in that part of the water presents, and particularly near towns. In the metropolitan parks, above all places, one would think that this precaution would be taken, but it has been apparently overlooked, and consequently the filth that accumulates at the heads of most lakes has, especially in winter, a most disagreeable appearance.

Our illustration is suggestive of an apparently interminable piece of water, and it well explains our views with regard to the margins of lakes. Many other ideas would, of course, be suggested according to the peculiar circumstances of the place, such

as the immediate surroundings and the conformation of the surface of the ground, so that, as in every other department of landscape gardening, no general rule can be laid down to fit the peculiarities of every case, and many circumstances have to be taken into consideration, but in every case a near approach to natural scenery should be the object aimed at.

WILLIAM GOLDRING.

THE FLOWER GARDEN.

BEDDING PLANTS AND COLOUR.

ON the well-expressed note of "E. W. H." to which Canon Hole alludes (p. 85) respecting *the glorious colour of bedding-out plants making our dull northern green and gray tones to glow with something of the glory of the Tropics* I should like to say a word; and the essential word in all these matters is, that the colours of the meadows and copses of the northern world are brighter and more glorious in all ways according to the testimony of every traveller who has written on the subject than those of the Tropics. That no colour afforded by bedding plants is so pure and glorious as that of a "cloud of golden Daffodils" or colony of Globe flowers. The most serious mistake that can be made by an advocate of bedding-out is that all glorious colour belongs to the plants usually grown under that name. The facts are so much the other way as to make comparison needless to those who know them. While we are waiting for the "glories" of bedding-out, there were infinitely lovelier scenes (from the point of view of colour only) in the wilds of northern and temperate countries; and when the glory came it was as nothing in point of colour alone to a group of the Californian Lily or any of its forms, refulgent and stately too. I saw a bed this year which was one of the most glorious examples of colour conceivable. Then consider the superb colour of well-grown Pæonies or of well-selected Irises in good moist loam, or of a collection of Delphiniums in bloom (quite unrivalled in colour by any tender plants of the same hue), or of a bold group of the Cardinal flower in a space between shrubs in a peat bed, or of the various forms of *Trifolium* on a lawn. "E. W. H." and all others interested in this matter may be assured that one of the weakest points in bedding-out as commonly practised is, that the colour is rarely so rich or bold or pure as that afforded by hardy plants; all we want, therefore, is the knowledge to display this colour, so that it may not be frittered away in unmeaning dots. In doing justice to the colour of bedding plants he has forgotten the infinitely nobler colour of which they are deprived us.

J. H.

LILY BULBS—ANNUAL OR PERENNIAL.

MR. MILES (p. 29) has given a most interesting account of the renewal of bulbs; and even less discriminating observation than his must have led others to a somewhat similar conclusion as regards the more common kinds. Seeing, however, that each healthy bulb appears to contain within itself three distinct existences, the last of the three not perfected until the third year, any one bulb can scarcely be said to be annual. Is there not rather a gradual growth of a new bulb which absorbs the old scales? and does Mr. Miles find that the radical plate in bulbs is similarly absorbed? It appears to be of longer duration—as with scaly bulbs, so more stringently in Irises, the renewal of bulbs seems really an annual process, and the radical plate is also superseded each year. We see this very readily amongst *Crocus*, *Gladiolus*, *Ixia*, and others of the genus. I do not know whether *Iris tuberosa* renews its tuber, nor was I aware of the fact as regards the bulb or tuber of the *Erythronium* as observed by Mr. Miles. I am doubtful whether the annual theory applies to the stoloniferous *Crocus nudiflorus*. The tubers of some of the *Orchis* family appear to be renewed one lobe at a time; one the first year, the other lobe in the next year. With regard to the garden Haycynth (*orientalis*), I fancy the renewal is different; and we must exclude from the category not only the bulbs of *Amaryllids*, *Amaryllis*, *Narcissus*, *Sternbergia*, *Nerine*, &c., but the more solid Lilyworts, such as *Scilla*, *Lachenalia*, and very many more. I will not, however, take up your space further; I merely wish to throw out this hasty notice for Mr. Miles' consideration.—T. H. A.-H., *South Devon*.

—It is impossible to read the lucid statement of Mr. Frank Miles at page 29 without almost consenting to his theory, either against or with our wills. "Dunedin," from whom I differed somewhat, also threw floods of light on the life history of bulbs.

The subject is one of the most interesting and important that can engage our attention. There can be no question that many bulbs are renewed annually; they are exhausted or absorbed in the compound effort of throwing up a flower-stem and reproducing one or more new bulbs. The processes of flowering, decomposition of the old bulb, and development of the new may be watched, as it were, step by step, and from day to day. But other bulbs, and not a few Lilies, are different. The processes of life, death, and duration of their bulbs is complicated by the running of three or more bulbs abreast, as is, indeed, pointed out by Mr. Miles. Hence many who might demur to "Dunedin's" contention of the annual character of bulbs might without inconsistency agree with Mr. Miles' theory of a progressive decay of old and succession of young ones. And even among Lily bulbs there may be as great a variety in the duration of the individual life of bulbs as there is undoubtedly in their size, form, and perhaps modes of reproduction. In fact, it seems almost a figure of speech to call such curious Lilies, as *Washingtonianum*, of which I recently saw enormous quantities at Mr. Bull's, a bulb at all. Hence it may almost be left out of the discussion. The conduct of Lily bulbs partially exposed seem so widely different to those under ground, that experiments are not so simple nor trustworthy as they may seem at first sight. The results must therefore be received with caution. Wider observations, however, all tend towards the conclusion so ably stated by "Dunedin," and now more liberally interpreted by Mr. Miles. I agree with the latter in regard to the forms of bulbous Irises, *Crocuses*, and *Gladioli*. It may also be more or less true of all bulbs, that each one has a stated period assigned it to live, to be then succeeded by a younger one, but it seems quite impossible for all bulbs to be annuals. For example, I have had a plant of *Griffithia hyacinthina* before my eyes for the last five years. It has flowered most seasons, enlarges slowly, but has neither disappeared nor produced a single offset. *Pancratium* and *Eucharis*, again, do not lose their old bulbs annually, though they produce new ones in abundance. Of course these plants are widely different from Lilies, though in general character and mode of growth and reproduction such plants seem more closely assimilated to *Lilium giganteum* than the different Lilies are to one another. However, as Mr. Frank Miles has done me the honour of appealing to me, I frankly acknowledge that I have advanced so far towards the views so ably stated by "Dunedin" and himself as to believe that probably no individual bulb is perennial in the sense in which the term is generally used, but that each has a limited term of life, and that when this is reached it perishes, and is succeeded by younger bulbs that run the same course, and so on in succession. I also believe that even in the single family of Lilies the length of the life of individual bulbs may vary, and hence that the expression annual should not be indiscriminately applied to Lily bulbs. I am, however, as these remarks will show, open to conviction, and will be glad to hear all that "Dunedin," Mr. Miles, and others may have to advance in further proof of Lily bulbs being annual.—D. T. FISH.

—Mr. Frank Miles (p. 29) asks me what I think of his and "Dunedin's" views on the biennial theory of Lily bulb growth. If he had read his copy carefully of my "Notes on Lilies" he would not have asked this question of me, as on pp. 202-6 of those notes I put forward a clear statement of my views, as opposed to those of "Dunedin," viz.: that certainly fresh annual growth is requisite for inflorescence, but that old scales do not die off, as reported by "Dunedin" in so short a time as six months; that "Dunedin's" notions apply to a certain section of bulbs (*speciosum*), but are not in my opinion equally adapted to all these sections, squamose, horizontal, oblique, including the *Cardiocrinum* section. That "Dunedin" omitted all mention of the to me most important factor in bulb growth, the root stock or central axis action. This I believe to be the origin of all vital principle in the Lily tribe, the remaining parts being more or less accessories. "Dunedin's" investigations were good, but he made too much of his seed bud, and was too diffuse in his writing; if he would have printed a short *résumé* of his ideas it would have helped us much better to understand what he really was driving at.—ALEX. WALLACE, *Colchester*.

—I was led by the former discussion on this subject to examine for myself some Lily bulbs, and I must say that the result does not bear out the statements made by Mr. Miles in *THE GARDEN* (p. 29) as to these being of annual duration. I should like to add a few remarks in support of Mr. Baines, Herr Max Leichtlin, and others who maintain that Lily bulbs are truly perennial. It is readily observed that an annual growth occurs, but the present year's growth, if in health, will retain its scales at least three years, and as a general rule the bulbs and the scales represent from three to four years' growth or development. Of course the old scales perish as they become exhausted, and their functions have served their purpose. No one, I think, would care to tear away the old scales from the bulbs, as is done with *Crocus* and *Gladioli*. An annual is said to be raised and bloom during the course of twelve months from the time of sowing

the seed, and it will take a good deal to make one believe that from what is called a Lily seed-bud a flower will appear in that time.—J. S. T.

THE GOAT'S RUES.

(GALEGA.)

AMONGST hardy border flowers these have long been favourites. They only number about half-a-dozen, but every one of them is showy enough to be grown in even the most select borders. They possess the great merit, in common with hundreds of other hardy flowers, of incurring but little or no trouble in cultivation, flourishing well in almost every position, but preferring a good rich garden soil. On account of their sturdy growth, and not being fastidious as to the kind of soil in which they are planted, they are excellent subjects for the wild garden, in which they may be allowed to grow undisturbed, and if planted in colonies or groups they are very effective. They are all herbaceous perennials, and grow from 2 ft. to 5 ft. in height, according to position and soil. In placing them in ordinary borders, care should



Common Goat's Rue (*Galega officinalis*).

be taken that the situation which they occupy is not near any choicer plant of weaker growth, or they will soon overgrow it or otherwise injure it. All are excellent for affording an abundance of cut flowers of varied hues; therefore, a good-sized clump of the various kinds should be plentiful. The propagation of all the kinds is easily effected by dividing the plants in spring, or by means of seeds.

The species and varieties are

G. officinalis, or Common Goat's Rue, is a native of Southern Europe. It averages from 3 ft. to 5 ft. high, and bears abundantly in summer dense clusters of Pea-shaped blossoms of a pretty pink colour. There is also a white-flowered variety named *alba*, which is extremely desirable for cutting purposes. A variety called *africana* has longer racemes of blossoms of a more purple tinge.

G. orientalis, or Oriental Goat's Rue, is also a very handsome plant from the Caucasus. It varies in height from 2 ft. to 4 ft., and bears its flowers in a manner similar to the preceding, but smaller and of a bluish-purple colour. The roots or underground stems and slender flexuous branches distinguish this species from any of the cultivated kinds.

G. persica, or Persian Goat's Rue, is a rather later flowering kind, and grows from 2 ft. to 4 ft. in height. The flowers, which

are white, are produced in dense racemes on slender axillary stalks.

G. biloba is a species with pretty bluish-lilac flowers, but though it is an old inhabitant of gardens, appears now to be almost exterminated. G.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Christmas Roses.—I saved some seed of these last year, and sowed it both indoors and out, but no plants have come up. What is the best way in which to manage such seed.—G. C. [If your seeds were good they may yet germinate, as they usually lie a long while in the soil before they do so. Keep the soil moderately moist until the seed leaves appear above the surface.—G.]

Hardy Flowers.—The taste for a real garden flora having now been established beyond all question, how to deal with each plant, or each family even, is an important one. We propose to shortly attempt to deal with the whole subject—the value, culture, and use of all plants which may be used for the embellishment of our gardens—we mean outdoor gardens, of course. These will be treated of in alphabetical order, and at a length proportioned to the importance of each genus. All plants entitled to the distinction of hardy will be included, and which are not woody. All hardy florists' flowers, hardy annuals, biennials, rock plants, and certain important plants which contribute to the beauty of our outdoor gardens will be included under the short, but comprehensive term with which this paragraph is headed.

Hardiness of *Erica melanthera*, &c., in Ireland.—This pretty little Heath we have proved to be as hardy as *Erica codonodes*, which it to some extent resembles. We call it little, but this applies only to its flower, for I can remember once seeing a plant of it in a tub 12 ft. high, a tall pyramid, so that this Heath is capable of being grown into quite a tree. *Erica codonodes* has withstood the frost of the winters of 1878 and 1879 in Ireland, and I am sure that *E. melanthera* would prove a companion plant anywhere if the soil were suitable, that is, a sandy loam or peat soil, where lime is absent. We have had it for three years planted out in the open shrubbery, where it made good healthy growth each year, and was also covered with its multitudinous flowers. *Clethra arborea* we tried at the same time with the same success. This latter, however, is a large-foliaged plant like a *Kalmia* or *Rhododendron*.—HIBERNIAN.

Best Variegated *Pelargonium*.—"B. H. S." (p. 83) wishes to know which is the best variegated white and green *Pelargonium*, the variety known as *Bijou* growing too luxuriantly for his purpose. I would recommend him to try *Silver Chain*, which is an excellent bedding sort, with neat foliage and light scarlet-coloured flowers; or if he wishes for an entirely white bed I would then recommend to him a very beautiful variety, named I think *Mrs. Mappin*, with singularly pretty white margined leaves, and an abundance of trusses of pure white, well-formed flowers. But as a curious indication, or rather result, of its hybrid origin, this white-flowering plant will occasionally produce a truss of bright scarlet blooms, and, stranger still, not infrequently a scarlet bloom in a truss of white flowers, and occasionally a scarlet petal on an otherwise white bloom.—P. G.

Florists' Tulips.—I have read the Rev. F. D. Horner's able article on the Tulip, and also the remarks by "Peregrine" in THE GARDEN (p. 32), and the question that cropped uppermost was this: Are we to have properties in our garden flowers, or are we not? Mr. Horner very clearly defines the various points of the Tulip, and he writes from a life-long, loving experience of it, grown in his own garden. I cannot but think that "Peregrine" has had no such experience. He tells us there are "florists and florists," and that the one to be commended is he who "takes what Nature sends in a thankful spirit." Allow me, therefore, to place the modern Tulip raiser in that number. The florist's business is "an art which does mend Nature." It would never do to take all that Nature sends us. No gardener or florist would do that. We must have selection. The question is, What are we to select? Take, for instance, the Tulip as it grows wild in its native Syrian plains; compare that with the varieties selected by the florists, and what do we see? The substance of the petals is increased, the size, form, and duration improved, and, best of all, the variety, as regards colours, are multiplied; and how has all this been accomplished? Absolutely and entirely by Nature herself. The florist finds a flower produced from Nature's wilding richer in colour or more persistent in petal than ordinary. He raises seedlings from it. These are crossed and re-crossed to bring out certain colours, more elegant forms, &c., and the result, after 300 years, is the beautiful Bizarres, Byblémens, and Roses feathered and flamed of to-day.—J. DOUGLAS.

Tree-root-infested Borders.—"G. G.'s" case (p. 83) is, I think, nearly hopeless. No kind of plants will grow satisfactorily in a border of soil to which the roots of large trees have free access. Top-dressings will in no degree mend matters, as the tree roots will at once claim them as their own. I would, however, recommend

the planting of the border with the common Irish Ivy or the Hypericum calycinum (Goat's Beard). And in order to secure variety, place vases or large pots containing flowering plants of various kinds amongst the carpet plants during the spring and summer months.—P. G.

Pyramidal Hollyhocks.—I read with interest a communication from "F. W. B." in THE GARDEN concerning Hollyhocks and Chrysanthemums. About the former, I wish to bring under the notice of your readers a system of management which I believe to be quite new, and which can best be described by telling how it came about. I had once a good collection of Hollyhocks, but finding them get unsightly and top-heavy after the first flowers were past, I used to shorten the main stem 10 in. or 12 in. at that period. One season a man in my employ cut off the tops, but before the flowers had made their appearance, or rather expanded. The result was surprising. In a very short time side branches sprang out from every leaf-bud on the main stem of different lengths, and became furnished with blossoms, thus forming a very handsome pyramid. It has, therefore, occurred to me that some of the readers of THE GARDEN might like to repeat the experiment.—J. W.

Trillium grandiflorum—"J. H. H." asks (p. 66) how this lovely flower should be grown. I have known it for forty-five years, and the best plant I ever saw of it was last year in a garden at Linlithgow. It was in full bloom when I saw it, and was strikingly beautiful. I did not measure it, but I think it would be nearly 3 ft. in circumference. It likes to grow in the full sun in common garden soil, but it delights in a little peat and sand, and is fond of moisture. When in a growing state, the less it is meddled with the better. This is the only Trillium I know that is worth growing.—J. ADDISON, Kirkliston.

—Wooster states ("Alpine Plants," second series, p. 101) that Trillium grandiflorum was introduced to England from America in 1799. I have, however, come across a very much earlier notice of it in Parkinson's "Theatrum Botanicum," or "Theatre of Plants," published in 1640. It is there figured at p. 391 as Herba Paris canadense rotunda radice, "the Herb True Love of Canada, with a round roote," the figure being placed on the same page with that of our English "Herb Paris, Herb True Love, or one berry." It is thus quaintly described: "This herbe groweth with three large leaves, and at the toppe of the upper stalke one flower, consisting of six leaves, three whereof are greene and small, which are, as it were, the huske to the other three leaves, which are larger and longer, of a dark purple colour, and in some white, and in the middle whereof groweth a small, round, blackish berry, full of small seedes like Nightshade seede; the root hereof creepeth not, as the former, but groweth into a small, round tuber. It was brought out of Canada, and mentioned by Cornutus, in his booke of Canada plants." "J. H. H." asks for the conditions which suit the Trilliums. In reply, I would say that they should be planted in a moist situation where they are in shadow after noon. A very suitable place is either in rockwork, or at the foot of an old wall or Beech fence, where they are well sheltered from frosts and cold winds. The soil should be mainly peat or leaf-mould, and as light as possible, and they should be disturbed as little as possible. We grow a good many here in pots, which are plunged in peat during winter, and mulched thickly over with sawdust manure until winter is over. They are allowed to remain out until the buds are nearly ready to open, when they are placed in a cool greenhouse. They bloom, of course, out of doors, but the delicate white flowers are soon dashed by wind and rain, unless protected from the weather. I know of no more beautiful flower than Trillium grandiflorum, and its culture is easy.—WM. BROCKBANK, Brockhurst, Didsbury.

Alpine Plants in Charcoal Dust.—During the present severe weather I am much pleased with the condition in which I find my choicer hardy plants, arising from their being plunged and slightly covered with fine charcoal. Having it in considerable quantity, it is used here in many ways with great advantage in the garden, but in no case has its usefulness been more apparent than when used as stated. Whether the plants are plunged in the open or in frames I have found nothing to equal it, being in effect next to a good covering of snow. Bracken frequently changed, to secure dryness, is also most useful, but I always found that unless the small refuse was well picked from the crowns of the plants, it assisted rather than otherwise the decay arising from damp and partial confinement, and that work took up a good deal of time. Not only much inconvenience, such as splitting of pots by frost, is prevented by the plants being plunged in fine charcoal, but if it is freely sprinkled over them, such plants—so liable to decay from moisture—as Sedum dasycyllum, S. brevifolium, Drabas, Androsaces, the tenderer Irises, hardy Orchids and Primulas, carrying persistent foliage, are practically saved from fungoid disease, so very destructive at this season to

many of the rarer alpine species, which have, perhaps, hitherto been tended with more than ordinary care. Another advantage is that it does not shut out light, as Bracken does.—J. WOOD, Woodville, Kirkstall.

THE INDOOR GARDEN.

EARLY-FLOWERING PELARGONIUMS.

I WELL remember that some fifteen years ago the few kinds of Pelargonium that bore forcing were distinguished by ragged flowers; now, however, there is but little to be wished for in this respect, and habit and floriferousness are all that could be desired. By-the-by, do any of your readers grow Mr. Lewis Lloyd, a variety raised some years ago at Messrs. Jackson's, Kingston-on-Thames? It represents one of the earliest attempts to improve the early-flowering section, and was the result of a cross between Alma and one of the French spotted varieties. The flowers are bright, but its great beauty consists in the purple eye. It was sent out as a market kind, and was much grown for a time, and I believe that one or two market growers still use it to a limited extent. It requires, however, a very light position in the house, otherwise it fails to develop its bloom-buds. Some, through not giving it the necessary accommodation, failed with it, and consequently conceived a prejudice against it. It is really a fine, showy, and distinct kind, and one of the most effective when well grown. I fancy that raisers have somewhat overlooked the distinctive merits of this variety, but I should think that it might be made the means of originating some fine forms of this useful and showy class of flowering plants. In order to get good well-established plants by the autumn, cuttings must be struck as soon as obtainable, potted off, and grown along freely throughout the summer.

It is hardly needful that I should indicate the course of treatment to be pursued, but I may remark that the last shift should be at a sufficiently early date to allow of the whole ball of soil becoming thoroughly permeated with healthy feeding fibres. The great point is to bring the plant into that state of growth that but little stimulus in the way of artificial warmth will be needed to cause the bloom-buds to show themselves. This Pelargonium will not bear such close confinement when being forced as many flowering subjects, and a want of knowledge of this fact is probably the cause why many fail with it. There is no better place for it than a shelf near the glass where a maximum of light is obtained and a circulation of air is felt when the ventilators are opened. Light, air, and heat in judicious combination are requisite, one and all, for the proper growth of the plant and the due development of the flower trusses. A close, steaming atmosphere must cause complete or partial failure.

J. C. B.

EPACRISES FOR WINTER FLOWERING.

THE bright tints that many of the Epacris exhibit render them really cheerful and effective subjects at this time of the year, and the great wonder is that they should not be more largely grown for winter decoration than they are. They last a long time in bloom, and certainly furnish shades of colour of a somewhat unusual description, a fact which renders them very striking when associated with other flowering plants. For cutting they are extremely useful, as their long slender branches, with their numerous long, bright, tubular flowers, may be cut away bodily without in any way injuring the specimen, in which condition they produce a very pleasing effect when employed in an informal manner with other flowers. A well-grown specimen in an 8-in. pot will yield a large amount of bloom for cutting, or will form an effective subject for months for conservatory decoration. I cannot conscientiously recommend the Epacris as a room plant, for it loves a cool atmosphere and free ventilation, and does not thrive in confined quarters. When used for indoor decoration the plants should never remain more than a week at a time in the room, and should be well syringed when taken out. Small growers generally fight shy of the Epacris, considering it a difficult plant to grow. This is a delusion, for few hard-wooded plants are more easy to manage. One thing the Epacris will not bear, and that is over-crowding, either when in free growth or when in a state of rest. Too often amateurs' greenhouses are crammed as full as they can hold. Soft-wooded plants are brought to the front whilst the hard-wooded ones are consigned to the darkest and most confined quarters. Some plants will put up with such treatment fairly well, but the Epacris is not of that number, and sheds its foliage when deprived of its due share of light and air. An ordinary greenhouse or frost-proof frame suits it in winter; in fact, a few degrees of frost do not appear to affect it in the least, for I have known several large trade collections to be repeatedly frozen, the soil in the pot becoming so hard that a pointed stick could not be thrust into it; and yet the appearance of the plants throughout the year was as good

as could well be desired. Peat of the best quality only should be employed as a rooting medium, mixing with it plenty of coarse silver sand. Cut the plants back and shift in March, potting firmly. Keep them rather close for a time, then give plenty of air, and towards the latter end of the summer let them have free exposure night and day.

G. C.

THE SURINAM QUASSIA.

(QUASSIA AMARA.)

THE tree bearing these names was at one time much more important as an economic plant than it is at the present time, inasmuch as from it was procured the Bitter or Quassia wood of the early writers on medicinal plants. Quassia amara is a low-growing glabrous tree, with unequally pinnate leaves, the petiole or stalk of which is flattened or winged. The flowers are about 1 in. long, of a bright crimson or scarlet colour, and, as will be seen by the annexed woodcut, are borne in terminal racemes or clusters. The stamens, ten in number, are longer than the petals; the habit of the plant, the form of its leaves, and the bright colour of its flowers recommend it for cultivation in our hothouses, where, indeed, it may occasionally be seen. It is a native of Surinam, Panama, Venezuela, Guiana, and North Brazil, and it has also been found in some of the other West Indian Islands. The generic name of Quassia was given to this plant by Linnæus, in memory of Quassi, a negro slave, who first used the wood with success in curing the malignant fevers that often prevail in Surinam. Daniel Rolander, a Swede, succeeded in bringing some of the wood to Stockholm in 1756, and upon its properties becoming known, the demand for it became so great as to considerably exceed the supply, a circumstance which led to the introduction of the wood of an allied plant of Jamaica, the *Picræna excelsa* of Lindley, which, being a tree of considerable size and very common, not only in Jamaica, but in other West Indian Islands, and having a wood equally bitter, was a ready source of Quassia. The wood of the Surinam Quassia does, however, come into this country in small quantities,



The Surinam Quassia (*Quassia amara*).

as a substitute for, or mixed with, that of *Picræna excelsa*. The same bitter principle is also found in the wood of *Simaruba amara*,

a tree of North Brazil and Guiana, which, like the two plants already mentioned, is used as a tonic medicine. It is remarkable that Quassia has a narcotic effect on some of the higher animals, while it amounts to absolute poisoning in the case of flies; hence its use as the principal ingredient in the *papier moure* fly papers and in the preparation of a wash for removing insect pests from living plants.

Kew.

J. R. JACKSON.

THE HAND-FLOWER TREE.

(CHEIROSTEMON PLATANOIDES.)

THE chief point of interest in this tree is well shown in the annexed engraving of its flower. It is called Hand-flower Tree on account



The Hand-flower (*Cheirostemon platanoides*).

of the peculiar disposition of the stamens, which unite in a column for one-third of their length and then become free, forming, as it were, five clawed fingers. For this reason the tree, when first discovered, was held in veneration by the Indians of Toluca, and also because it was supposed by them that there was only one tree of it in existence. This, however, was soon proved to be a mistake, forests of it being found near the city of Guatemala. It grows to a height of about 30 ft. and probably more, judging from its appearance in cultivation. The leaves are Plane-like, with from three to seven rounded lobes, dark green above and clothed beneath with a rusty scurf of star-like hairs. The flowers have no corolla; the calyx is leathery and of a rusty-red colour; inside, at the bottom, are five yellow cavities which secrete sweet fluid. The stamens are bright red. Coming, as this tree does, from within 20° of the Equator, it might be expected to require a stove temperature, but at Kew it has reached a considerable size in the temperate house, and appears only to require greenhouse treatment. Cuttings of it taken from small pot plants would probably strike, and should be inserted in small pots, using a sandy soil, preferably of peat, because of its porous properties. After being well rooted, a compost, chiefly of loam, which suits older specimens admirably, should be used. Its terrible native name, expressed by nearly two dozen letters, we cannot venture to give.

R. J. L.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Black Fungus on Camellia Leaves.—I shall feel obliged if you can explain the cause of the black fungus or honey-dew on the enclosed Camellia leaf, and give me a remedy for it. I find that on washing each leaf carefully it comes off without leaving a trace, but as this is a tedious operation, I would like to have a preventive remedy, if possible. My plants are in a small house, with a north aspect, and receive no sun in the winter. The house is glazed with putty, but I don't think drip can be the cause, as occasionally I find the fungus on the under sides of the leaves. It also attacks my Gardenias and some of the other plants, but to a less degree. It

seems to be a sort of honey-dew, like that on Lime trees.—ITALY. [We can see nothing like honey-dew on the Camellia leaf; it has probably dried up if present at first. The black fungus is Capnodium Footi, a not uncommon pest on evergreens, some herbaceous plants, and deciduous trees. A Lichen named Strigula often accompanies the Capnodium. No remedy is known, but the attack, as in this instance, is generally superficial, and, as you say, "comes off without leaving a trace" behind it.—F.]

Pancratium caribæum.—This is a charming occupant of our stoves, and one that can be had in flower at almost any season, but if left to itself it seems to prefer the dull winter months, as it is now in many places throwing up its spikes of beautiful pure white blossoms, so suitable for bouquets and similar purposes, and so fragrant as to attract attention immediately on entering a house in which they exist. This *Pancratium* seems to succeed best in turfy loam with a little manure, and after flowering it should be removed for about a month to a somewhat cooler temperature, say an intermediate house, and when again introduced into the stove it will soon grow away vigorously and flower.—ALPHA.

Abutilon Van Houttei.—Most of the dwarf *Abutilons* are either white, yellow, rose-coloured, or of the Darwini type, although amongst the latter some of the newest are remarkably bright; but the colour of *A. Van Houttei* is so distinct, being a light purple, that it should certainly be grown wherever there is any demand for these winter-flowering plants. It is not a new variety, having been sent out from the Continent some four years ago, but seems at present but little known.—ALPHA.

The Variegated Negundo for Forcing.—This is an exception to the general rule of plants for forcing, most of them being grown for the sake of their flowers; but if this is introduced into the forcing house it will soon burst into leaf, and the beautiful variegated foliage which it possesses has an interest peculiar to itself at this season, when any conspicuous plant is gladly welcomed. Dwarf bushy little plants of it are best for this purpose; they may be potted up from the open ground and treated as other subjects are for forcing.—ALPHA.

Shade-loving Plants.—In addition to the plants already alluded to as growing best in shady houses, allow me to mention some *Orchids*. *Miltonias* generally, but especially *M. spectabilis* and *M. Morelliana*, grow and bloom much more freely in the shade than in sunshine, and the plants so grown have a fresh bright green appearance when so treated otherwise foreign to them. *Cypripediums* may be grown in shade, and certainly look fresher and more presentable when so grown than they otherwise would do. *Calanthes* of the evergreen section, *Anætochili* generally, *Goodyeras*, *Masdevallias*, *Dalechampia Roezliana rosea*, *Fittonia argyroneura*, *Gymnostachyums*, *Bertolonias*, and ornate-leaved *Begonias* certainly grow most luxuriantly in the shade. I believe that many of the failures experienced in growing the Lace plant (*Ouvirandra fenestralis*) is owing to its not being sufficiently shaded. Not only does bright sunshine brown the leaves, but it induces the rapid extension of convolvuloid growth, which soon acts on the plant in an unfavourable way.—F.

Colletia cruciata.—If in an ordinary greenhouse temperature this *Colletia* must now be covered with its pure white flowers, reminding one of single bells of Lily of the Valley. Apart from its value as a winter-flowering plant its peculiar growth attracts attention, being so different from that of all other occupants of the greenhouse. It is nearly hardy, that is to say, it only suffers in exceptionally cold winters, yet when outside it blooms later, and the flowers, having a greenish tinge, are not so striking as when inside. It is also known under the name of *Colletia Bictonensis*.—ALPHA.

Anthurium candidum.—Although of humble appearance compared with such kinds as *A. Scherzerianum* and *Andreanum*, yet this ivory-white-spathed, winter-flowering species is so distinct that it should certainly be oftener seen in our stoves than it is.—ALPHA.

Grey Plovers' Eggs.—Allow me to make a few remarks on your correspondent's letter on this subject in THE GARDEN (p 81). I am perfectly aware that the natural habit of the bird is to go north to breed, but not to one particular part. Therefore, good as the book "*Siberia in Europe*" is, I cannot pin my faith to that one account. In other equally good books I have read of the grey plover breeding in the mountains of Sweden, Poland, Prussia, and Lapland. In Morris's beautiful book on "*British Birds' Eggs*" he gives a drawing of the grey plover's eggs, taken in Finmark by the Rev. H. B. Tristram. If the drawing had been taken from the egg which I possess, it could not have been a better imitation. I cannot, therefore, relinquish the idea that my egg is not a British specimen. The birds might have kept here from some cause or other, as several

other migratory birds have done, and breed in a wild, moist, mountainous place. Take, for instance, the woodcock. When the plovers' eggs were brought to me, they were known to be a great rarity. The man had spent nearly the whole of his time on the moors, and collected plovers' eggs, I might say with truth, by the bushel, and he knew perfectly well the difference between those of the grey, the golden, and the common plover. There would, doubtless, be other recorded instances of migratory birds breeding in the British Isles were it not for the secluded nature of the nesting-places and the unobservant habits of people in those places.—WILLIAM CULVERWELL, *Thorpe Perrow, Bedale.*

THE ROSE GARDEN.

ROSE CUTTINGS IN WINTER.

A GREAT many cuttings are lost in the dead season. During the early stages of the cuttings they can hardly be kept too cool. The cool period extends from the time of insertion to that of callusing. The moment this is completed, the cuttings should have sufficient heat to force roots to spring forth from the indurated vital surface of the callus. During the first stage the cutting advances towards a plant, in virtue of its internal supplies. During the second it must be fed from without, or it perishes. It is most essential to bear this in mind if a full measure of success is to be attained. The processes are not more distinct than the different ratios of speed required for their completion. During the first the rate of growth can scarcely be too slow; during the second it can hardly be too fast. A good many make the mistake of considering Rose cuttings safe as soon as they are callused. They are not. Scores, hundreds of them perish from sheer exhaustion, apparently after this important preliminary step towards perfect planthood has been taken. Nor is it to be wondered at. All the vital force, the whole of the organisable matter contained in the few inches of stem, has been expended in the making good the first steps towards roots. Therefore, unless the second is quickly taken, the cutting cannot live on nothing.

Heat applied during the earlier stages of the cutting is equally injurious; it develops the growing force of the cutting in the wrong direction and at the wrong end. It is easier to start buds into shoots and leaves than to form a callus; hence any excess of heat turns growing force into these. And as there is not enough for both purposes, cuttings that make top growth too early seldom root. So absolutely true is this statement that it may be accepted as an axiom that the more top growth, the higher the percentage of deaths among Rose cuttings.

Cool, careful treatment seems essential to the gravitation of vital force towards the base of the cuttings. Experience has so far proved the soundness of this theory by showing that the open air or a cold, close house is the most favourable to the callusing of Rose cuttings. The latter is the best, and for this reason, that so soon as the cuttings are callused they may be placed in heat to force the callus to form roots. Though a fair amount of success may be obtained in the open air, yet Rose cuttings are often wrecked in the second stage by cold spells of weather and other causes. Whatever hinders their rooting endangers their safety. The largest, strongest Rose cuttings can only live a limited time without roots. It is exhausted at both ends, and it would often be difficult to show whether the callus at its base or the growing shoots have robbed it most; that both drain cuttings of their vital fluids is obvious enough to all practical men, who have found many cuttings with growing shoots on their crowns and abortive roots at their base, yet dead in the middle.

The best and surest preventive of such losses is the placing of the cuttings in a temperature of 55° or 60° as soon as they are callused. Roots are developed at once, and these send up supplies in time to refill the exhausted cuttings, and support the growing shoots and expanded leaves. From this point no time should be lost. As soon as a few roots are formed each cutting should have a pot to itself, and thus, before the cuttings could be rooted on the cool system, the plants may be filling a 4-in. or 6-in. pot with roots, and becoming neat, bushy, flowering plants within less than a year of the time of the insertion of the cuttings. Thus, by this compound method of treating Rose cuttings, not only are more rooted, but they are rooted in less than half the time, and the plants start with more vigour, and are much sooner developed into flowering size—all points of great moment in these ungenial times, in which the lives of individual Roses seem to become shorter every year, and the demand for Roses grows more insatiable.

D. T. FISH.

East Anglian Rose Society.—At a meeting held at Ipswich the other day it was resolved: "That a society be formed of Rose growers (amateur and professional) in the counties of Nor-

folk, Suffolk, and Essex, to be called the East Anglian Rose Society." "That the object of this society be to improve and encourage the culture and love of the Rose in the three counties named." "That a meeting be held each year in some principal town, in one of the above-named counties, when prizes will be contended for by members; also an All England open class at each show." It is proposed that the first show be held in connection with the summer exhibition of the Ipswich and East of England Horticultural Society.

THE ROSARIAN'S YEAR BOOK FOR 1881.*

THIS useful annual has just reached us, and is, if possible, better than its predecessors. It contains good articles on the effect of severe winters on unripened wood; the Rose of poetry; the cultivation of Roses, especially on their own roots; Rose stocks; an amateur's experiences; new Roses; Tea Roses; the weather of the past Rose year, and others, from amongst which we select the following by Mr. Baker on the different modes of cultivating the Rose.

Rose Stocks.

One of the most important considerations to the Rose grower is the selection of stocks best suited to his soil. Those most used are Dog Brier, Manetti, Céline, and De La Grifferie, and doubtless amongst these stocks the Dog Brier and the Manetti take the lead for general usefulness.

The Dog Rose is used in different forms, such as the standard, half standard, and dwarf. The dwarf is most generally raised from seed, and is known as the Seedling Brier, while within the last few years dwarf stocks of the Dog Rose have been raised from cuttings. The superiority claimed by many who prefer this kind of stock to the seedling is that it comes to hand in a workable state at least twelve months before the seedling, together with the certainty of its being straight and free from impediment where it is needful to insert the bud, whilst the roots can be kept near to the surface of the soil, so as readily to receive the benefit of manure applied to it either in a solid or liquid state. The Manetti has been greatly lauded as a stock, and I have the highest appreciation of its great excellence and importance. Some kinds of Roses, however, I admit, when budded thereon grow most luxuriantly the first year, but have been found to dwindle and die afterwards, owing, no doubt, to an over-excited growth; and the great freedom with which this stock throws up young shoots tends to impoverish and ultimately kill the variety budded on it. All these defects, however, I contend may be avoided or otherwise overcome by careful first culture and judicious pruning.

The Céline Stock is a very robust, strong-growing Hybrid Bourbon, and was first introduced as a stock some forty years ago. It is much used as a root-stock on which to work the strong-growing Teas and Noisettes not congenial to the Manetti. It can be readily propagated by cuttings.

The De la Grifferie has been recently brought under notice as a stock, though known in catalogues under the multiflora section to which it belongs as a Rose of some half-century back. This makes an excellent stock, being a vigorous-growing kind, and is said never to be attacked with mildew or other fungus. It is preferred by many to the Manetti for Teas and the more delicate kinds of Hybrid Perpetuals. Cuttings of this stock can be put in during November, and budded the following summer. There is another stock of which I wish to speak, having seen it largely cultivated by Mr. Brown (head gardener to A. J. Waterlow, Esq.). He calls it the Rosa Russelliana. It appears that some years ago, when thinning out the shrubberies at Great Doods, he found a very strong-growing Rose which was grubbed up. Thinking it might be suitable for a stock, he at once put in some cuttings, all of which did well, and were in due course planted for budding, more as an experiment to test their fitness and usefulness. They were budded with a few free-growing sorts; the buds took well, and made very fine plants the first year. He therefore raised a further quantity from cuttings, and the plants were very fine, maidens in some cases growing 6 ft. in height. Some of these were grown side by side with the Manetti and Brier stocks, but those on the Russelliana stock made much the strongest plants. The mode adopted for striking these cuttings is as follows: In November as many cuttings as are desired for stocks are taken and cut in lengths of about 10 in. All the eyes are carefully taken out, but two or three at the top, and the cuttings planted about 6 in. in depth in poor soil, or otherwise they are likely to get too strong. In the autumn following they are taken up and all the roots cut off to within 1 in. of the base of the cutting and the tops shortened. They are then planted, or rather placed, on the top of the soil, just covering them sufficiently with

soil to keep them firm for the winter. In the spring they are earthed up like Potatoes, and left so until required for budding. The plants are very vigorous, and scarcely ever show mildew, whilst others growing in close proximity are covered. He considers it the best of all stocks for budding, and the most fibrous-rooted of any. This stock is very similar to the De la Grifferie, but a stronger grower. Its botanical name is *Rosa multiflora Russelliana*, and bears a great resemblance in its mode of blooming to the old *Grevillea* (or Seven Sisters).

Own Roots.—Notwithstanding all I have expressed about the propagation of Roses, I feel persuaded the best mode of growing them is on their own roots, and I believe this opinion will become confirmed, and we shall find it ere long generally adopted; though, of course, there must be certain positions in every garden where the standards and half-standards may be planted with good effect; but to my mind Roses, like all other flowers, look best when planted in masses, and therefore, as plants, they will be seen to most advantage when on their own roots and producing the finest of bloom. I have grown some few hundreds from cuttings, and find them easy to cultivate. To raise Roses from cuttings (without heat) the best time to take them is, I think, the early part of September; they may, however, be taken until the beginning or even the middle of October. I prefer early in September, perhaps, because I have been more successful with cuttings taken at that time, and think it gives an opportunity for them to callus over before the cold weather sets in. In removing cuttings from the parent plant we should always select from those most healthy and where the wood is well matured, but not too hard if they are intended to be put in a cold frame, but if in the open ground this is of less consequence. When taking the cuttings remove them with a short portion of the previous year's wood, and in your after preparation to fit them for planting cut the base cleanly through where the season's growth has started, securing the covering of the last year's wood so as to form a heel; the cuttings will by this process be more certain to grow. They may be planted in any shaded part of the garden, where the soil is light and dry, and properly prepared. I would recommend, when planting, the use of a blunt dibber, so that the bottom of the ground be rendered even and firm. The cuttings may be planted in rows about 1 ft. apart and 6 in. from each other, fixing them firmly in the bed, and leaving only two or three eyes above ground. They may be taken up with a ball of earth and planted in the spring, keeping them close for a time, and hardening them off by degrees. They may be planted out at any time from May to September, and if the weather be hot they will require water for a time, about the same as bedding plants. Nice young free plants turned out in well prepared soil will, the second year, throw up strong shoots from 3 ft. to 6 ft. in length, and all suckers that come up are the Rose and not the stock, which is the perpetual annoyance to all amateur Rose growers.

Cuttings and Seedlings.—Rose cuttings should always be protected from frost in a cold frame, or if in the ground by mats and other materials. Plants raised from cuttings are a little longer in coming on, but they quite repay the extra time you have to wait for them. I have endeavoured to raise seedling Roses, and have succeeded, though to a very limited extent, with seeds from well-developed and ripened pods, but I have been neither surprised nor disappointed at frequent failure, knowing that the matter of which organisms are composed is one of the most perishable things in Nature. In her arrangements for ensuring the continuance of a species, Nature is lavishly bountiful, whilst in her provisions for keeping its number within proper bounds she is equally provident, and for one Rose seed that develops into a Rose thousands perish.

Transplanting.—Some forty years ago, when I began to grow Roses, I always took up my plants in the autumn, about the month of October, and carefully examined the roots, removing any broken or injured portion, and taking away some of the old soil and filling in the hole with fibrous turfy loam, on which the hairs of the roots greedily feed. For the first year or two my plants did well, and I imagined I had practised an important essential to secure fine blooms and long-lived plants; but later experience convinced me of the error, and in one rather severe winter I lost nearly all my plants. Those that survived gave evident symptoms of declining power. I consequently gave up the practice, and set to work to re-construct my Rosery, or rather to make a new one. For this purpose I enclosed a portion of a meadow adjoining my garden, and commenced to mark out my beds, forming them 6 ft. each in width and 30 ft. in length, leaving an intervening space of Grass 4 ft. wide as a path. By this arrangement I can readily get round the beds and give every attention to individual plants, and carry out the needful work required to be done. Rose plants when properly treated, may, with every advantage and success, be allowed to remain in the same ground for some years, but of course a time comes when it is necessary to change either the locality of soil, or perhaps both, for we know the

* Bemrose & Sons, London and Derby.

roots not only absorb fluid from the soil, but they return a portion of their peculiar secretions back again into it. This is why soil becomes deteriorated by species having long grown in it, so that it will not support plants of the same species until the fecal matter deposited therein shall have been decomposed.

THE GARDEN FLORA.

PLATE CCLXIX.—THE STRIPED SQUILL.

(*PUSCHKINIA SCILLOIDES*.)

THIS pretty hardy bulbous plant is well worthy of being brought into more prominent notice than it hitherto has been, for though it has been introduced now many years, it is still by no means well known. Another reason we have for illustrating this plant is to point out more clearly the difference between the true *P. scilloides* and another, though equally pretty, plant that has long usurped its name in gardens, at least in this country. This latter plant we figured not long ago in *THE GARDEN* (Vol. XIV., p. 288) as *P. scilloides*, a name by which it is still known in many gardens and nurseries. Since our plate was published, Mr. Baker, of Kew, has cleared up the somewhat mystical point with regard to these plants, and he has found that the little plant that was known in gardens as *P. scilloides* is really a species of *Chionodoxa* (*C. nana*), a congener of the lovely plant which we figured at p. 12, Vol. XVIII. called *C. Lucilæ*, or *Glory of the Snow*, brought into notice by Mr. Maw, of Broseley.

The plant which we now figure may be found in nearly all trade lists in this country under the name of *Puschkinia libanotica*, a name no doubt derived from one of the native habitats of the plant, Mount Lebanon. Another name by which it is known, and one very inappropriate, is *P. sicula*, a name under which it was figured in one of the Continental periodicals. There are two forms of the plant, differing only as regards the arrangement of the flower clusters. In the ordinary form the cluster is loose and fewer flowered than the other, which is called *compacta*, on account of the blossoms being more numerous and densely arranged on the spike; hence it is the handsomest kind. This form is represented in the accompanying plate, which was prepared from plants sent to us by Messrs. Barr & Sugden, who grow it in their trial grounds at Tooting under the name of *P. libanotica compacta*. It will be seen that the colours of the blossoms are disposed in so remarkable a manner as of *Striped Squill*.

Culture and Position.—The culture of this *Puschkinia* is an easy matter in any garden. It is perfectly hardy in this country, provided the position which it occupies is a dry one and the soil thoroughly well drained. It delights in a sunny border with a southern aspect near a wall, but if such is not available, an open border well drained and slightly raised above the ordinary ground level will suit it, and the best plants we have seen of it were grown in this way. Like all other bulbous plants of a similar character, it will not thrive if mixed indiscriminately with other plants if the latter are at all of coarse growth, for the shade and the consequent dampness have an injurious effect on the bulbs. The soil, which should be light and friable, should consist of rich compost about 9 in. or 1 ft. in depth, and the bulbs should be planted about 4 in. deep. During winter a protective mulching is advisable, but it should be removed as soon as the severe cold is past, and after the flowering season, which is late in spring, the surface of the soil should be entirely exposed, so as to allow it to become warm and dry in order to well ripen the bulbs, a most important point with this and most other bulbous plants of a similar character. Beyond

taking these precautions and placing the plant under the proper conditions at the outset, there is no reason why it should not flourish to perfection in any garden. Though collectors assert that it grows naturally in shady situations in sub-alpine districts, we fear that imitations of the plant's natural conditions cannot be carried out with success in this country. W. G.

DRACÆNAS AT ANERLEY.

FOR years past the Melbourne Nursery, now one of the branch establishments of the General Horticultural Company, has been celebrated for its extremely fine collection of *Dracænas*, all of which have been raised by Mr. Bausé, who has directed special attention to this genus with regard to the production of new kinds



Dracæna terminalis albo-marginata.

by hybridisation. Though the present time is not the most favourable to see the collection at its best, it is nevertheless in fine condition, and we were thus enabled to make the following notes respecting the most striking kinds. The importance of *Dracænas* as decorative subjects is plainly indicated by the enormous quantities grown here, but these even are found to be wholly inadequate to meet the demand made for such plants by the floral furnishing department so extensively carried out by the company. It is worthy of remark that the older kinds which are usually grown in large quantities for the special purpose of indoor decoration are now being supplanted, at least in this nursery by some of the newer varieties of Mr. Bausé's raising, and which are found superior in all respects for the purpose. One point in particular they excel in, and that is the colouring of the foliage on much younger plants, which on that account become effectively furnished from the rim of the pot upwards while scarcely more than 1 ft. in height. A



THE STRIPED SQUILL (*PUSCHKINIA SCILLOIDES*)

striking variation in point of habit of growth and breadth of foliage is likewise noteworthy in the case of the *Anerley Dracænas*. In some the leaves, which are scarcely more than 1 in. in breadth, are long and gracefully recurved, while in others they are shorter and stand almost erect.

Among kinds now being distributed for the first season may be mentioned *D. aurantiaca*, an extremely effective variety obtained by crossing *concinna* and *Regina*. Its long, narrow leaves, which are erect at the base, become gracefully arching. Their colour is of various shades of bright red-dish-orange, deepening from a pallid tinge to an intense flame-like hue, an unusual tint even among *Dracænas*, and seen only in two other kinds (*salmonea* and *majestica*, both obtained by crossing the same kinds from which *aurantiaca* was produced. There is, however, a remarkable difference as regards the habit of growth of the two last-named sorts, *salmonea* having rather broad erect leaves, while those of *majestica* are drooping. This, it may be remarked, has been aptly named, as it is of tall growth, and really possesses a portly aspect when seen about 5 ft. high, clothed to the rim of the pot with its handsome leaves. *D. Thomsoni*, shown in the annexed woodcut, is another of the new kinds. As may be seen by the illustration, which, by the way, is remarkably faithful, it possesses a stately habit of growth. The leaves are deep green, bordered with a pale rose tint and flushed in the centre with bands of rich magenta, deepening with age. This is a cross between *Regina* and the old *D. terminalis*, the same parentage as that from which *D. Caustonii* was obtained, which is a handsome kind, and though of robust habit, is specially well adapted for growing in small pots on account of its slower growth. The colour of the leaves is bronzy, suffused more or less with rose, which deepens with age. The above, together with an elegant-growing kind with narrow leaves of a dark crimson colour, were selected for certificates from a numerous collection shown at the Royal Botanical Society's exhibition in Regent's Park last season. Three other kinds, named *Knausi*, *venusta*, and *Wilsoni*, are among those that are new this season. The first is a free and robust grower, well furnished with variegated broad leaves, with a combination of green, pink, and magenta; the last-named kind is also handsome, being erect in growth with leaves of a similar tint to that of *Knausi*. *Venusta* is an extremely effective variety of medium growth, and remarkable, inasmuch as it colours in a very early stage of growth, and therefore it is particularly useful for growing in cases where it is desirable to retain the plants in small pots for table decoration and similar purposes.

Other kinds represented in this collection fall naturally into

well-marked groups, characterised first by the prevailing colour of the foliage, which is either red or green; secondly, by its breadth; and lastly by the habit of growth, whether pendulous or erect and spreading. It must be admitted, however, that there are no hard and fast lines of demarcation, as some merge into each other; but such a grouping is useful, in order to form an idea of the general



Dracena Thomsoni.

appearance of the variety.

* In the group in which a red colour predominates there are of narrow-leaved kinds with a decidedly drooping habit—*jucunda*, *Sidneyi*, *Ernesti*, *superba*, *aurantiaca*, *igneae*, and *Mrs. C. J. Freake*. Those with broad leaves, with a predominating red colour, and having an erect or spreading habit of growth, or in some cases slightly recurved and pendulous, are—*Berkeleyi*, *Barroni*, *Bausei*,

Cantrelli, Elizabethæ, Frederici, Gladstonei, Imperator, Leopoldi, Nitzschneri, Tellingi, Voluta, Willsi, Wilsoni, Thomsoni, Knausi, Causton, regalis, Seyfarthi, Renardæ, and recurva.

Those with green and white variegation, are all of an erect or spreading growth, are—*terminalis alba*, a very handsome variety, with the habit and character of the old *D. terminalis*, but with leaves variegated with pure white and deep green; Mrs. Wills, likewise a handsome kind, with similar variegation; *albo-marginata*, a strong-growing kind, a cross between Willsi and Regina, and characterised by a tall vigorous growth, and long and slightly recurved leaves, having a bright green ground, and a regular margin of white.

W. G.

TREES, SHRUBS, AND WOODLANDS.

Old Tan as a Top Dressing for Shrubberies.—I am quite sure that some of your readers have experienced the difficulty of keeping shrubberies clean in wet seasons when the soil is in the least inclined to clay; the surface becomes stiff, tough, and impracticable to the push hoe, and the idea of raking the surface to remove the weeds is out of the question. A year ago I had the run of a tanyard placed at my service in which there were hundreds of loads of old decayed tan, which I could have for the carting away. The idea presented itself that this tan would be an excellent top dressing to a long stretch of shrubbery with a soil such as I have described. The keeping of the shrubbery anything like clean had been a serious tax on the labour of the garden for years. The old tan was spread all over to a depth of 2 in., improving the appearance of the surface at once, but the relief in labour and anxiety has been very great during the past summer. Weeds did not readily grow in the tan, but when they did it was comparatively play to hoe and rake our hitherto obstinate shrubbery. There was some misgiving at the time of spreading the tan as to how it would act on the shrubs. Would it benefit, or would it poison the roots? I had used old tan between rows of Strawberries; I had seen it used extensively as a top dressing for grass land with the best results. This time I had the alternative of removing it on the least suspicion of its being injurious; but no necessity has arisen for so doing; on the contrary, there has been a marked improvement in the appearance of the shrubs. I believe the tan has had the effect of drawing the roots upwards to the surface nearer the influence of the sun and air, and so far benefited the shrubbery. I cannot venture to assert that they have been nourished by the tan, although I believe such to be the fact. The experiment has been so successful that I intend to top-dress other shrubberies in the same way. I do not hesitate to advise anyone having a tough clay soil to deal with to do as I have done if the same material is available. We do not dig it into the soil, nor would I advise such to be done; I rather think that the exposure to the weather gradually corrects the deleterious qualities, if any, in the tan.—HIBERNIAN.

Ilex crenata variegata.—One of the brightest little shrubs just now, is the variegated variety of *Ilex crenata*, a dwarf-growing kind which forms a dense bush when not more than 6 in. or 8 in. in height. The leaves are small, lanceolate, about 1 in. in length, and variously mottled with a beautiful golden colour, some being nearly all yellow, others almost green, but the variegated foliage predominates to such an extent as in the sunshine to give the bush a golden hue. This species is very slow growing, attaining at most 3 ft. or 4 ft. in height; it is a native of Japan, and was introduced some years ago by Fortune.—ALPHA.

The New Catalpa Tree.—Mr. Barney, the great car builder of Dayton, Ohio, employed Dr. Warder, Mr. Teas, and some other skilled experts to find out what they could about the two Catalpas. Their investigations proved the interesting fact that *Catalpa speciosa*, the hardy sort, was the most numerous in the West, while the other kind was a native of the Eastern States. Wherever Mr. Barney's agents went they found their views as to the value of the timber confirmed. In Southern Missouri, Illinois, Kentucky, and West Tennessee it grows uncommonly large, 3 ft. to 4 ft. in diameter, and 80 ft. to 120 ft. high.—*Rural New Yorker*.

The Japan Climbing Fern.—I have heretofore stated that the Japan Climbing Fern (*Lygodium scandens*) was hardy. The top growth has matured and died, but the lower fronds near the ground are still (December 19) fresh and green, notwithstanding the thermometer has been down to 8°, and the winter thus far exceptionally cold. As we have a fair promise of zero weather to give the *Lygodium* a thorough trial, I have not allowed so much as a dried leaf to remain near one plant. If it survives after three years' trial, it may safely be regarded as a hardy plant; and I hope it may, for with its enormous growth out-of-doors and its beautiful fronds, I

readily perceive what a useful plant it will be. What a lovely thing it would be in the moist climate of England, where it would be perfectly hardy, if not here. The best manner of growing this plant is not yet understood, to judge from what I have seen.—HORTICOLA, in *Rural New Yorker*.

A Beautiful Hedge.—I have made hedges of all manner of things, from a Pear tree to a Japan Quince, the interval embracing a good many pretty things. For a useful hedge in the proper place I prefer the Pear, but only a few kinds are well adapted for the purpose. For an ornamental deciduous hedge almost anywhere there is nothing to surpass, if to equal, the Japan Quince (*Cydonia japonica*). There are a number of deciduous plants that make pretty hedges, but the most of them are difficult to form and troublesome to keep in good shape and order. The *Cydonia* is almost entirely free from these objections, provided only that young plants be used to start with. What a lovely sight it is when in bloom, and how picturesque at all other times! Those who have a fancy for more than one colour can use the rose and white-coloured to mix with the crimson. There is this farther to be said in favour of the Japan Quince, that scarcely any manner of neglect can spoil its beauty. It can be easily and quickly brought into shape again. It will always retain its beauty, though it may lose its primness by neglect to be sheared. No amount of shearing, however, can ever give it that hard, solid, expressionless surface so common to evergreen hedges, or take away its *negligé* beauty, if I may so call it, and for that I like it above all others.—HORTICOLA, *Rural New Yorker*.

The New Forest.—When William the Conqueror, just eight hundred years ago, annexed thirty-six parishes and dispeopled the country for thirty miles round to make his famous hunting ground in Hampshire, the conquered natives, while suffering all the inconveniences of eviction from their old homes, experienced perhaps no sense of degradation in laying out and planting a grand preserve, which still bears its name of the "New Forest." Succeeding ages, at any rate, ignored all the cruelty of the action; and the great result of the invading conqueror's act of spoliation is still held in veneration as his beneficent legacy to the people. The powerful barons of England, however, long continued to keep a jealous and watchful eye on these royal preserves; and when they compelled Henry III. to confirm the Magna Charta which had been exacted from his predecessor, they added to it a "Charter of Forests," to prevent any private estates being appropriated for the creation of new "royal warrens or forests." But it was the later confirmation by Edward I. that gave to personal property and private domains the same security which Magna Charta had given to personal liberty. Our Norman rulers "afforrested" a district or a county of the conquered soil at their own royal will and pleasure; and the land so afforrested was meant, not to be planted with trees, but to be brought under subjection to the Forest Laws, under which the killing of a deer or boar, or even of a hare, might be punished with the loss of the delinquent's eyes; while the killing of a man could be atoned for by paying a moderate fine. It is a strange commentary on such cruel laws that, in the New Forest, which William the Conqueror had made, not only his son and successor, Rufus, but also an elder son and a nephew each met their death by accidents. When the Norman rule died out, our woods and forests ceased to be exclusively devoted to the royal sport, and began gradually to pass away from under the exclusive royal jurisdiction. The Plantagenets found their time fully occupied with the more serious affairs of State, and all their energies exhausted in resisting the demands of the earls and barons, till the complete establishment of Parliament, as the great legislative council of the nation, put an end to all the anomalies of the old feudal system. From that time, as public opinion became more enlightened and humane, the protection of equal laws was extended to husbandmen and artisans, as well as to the highest nobles. Primæval waste lands were redeemed, and much of the old hunting-grounds and unprofitable forests were made fertile with agriculture.—*Globe*.

Hardiness of Bamboos.—Mr. A. Woeikof, of St. Petersburg, writes to *Nature*: "I have found large varieties of Bamboo cultivated on a great scale in Northern Nippon, where the winter temperature is certainly much colder than in England. The northernmost place where I found them was the vicinity of Yokobori, about 39° 12' N., at a small distance (twenty-five miles) from the west coast. The nearest place to the south where observations were made is Niigata, 37° 55', and to the north Hakodate, 41° 46'. The coldest month has a temperature respectively of 33° 0 and 27° 3 F. Yusawa being situated about 450 ft. high, and in the interior, the coldest month there must have not over 30°, and a heavy snowfall is the rule every winter. Again, on descending the dividing ridge between Jukussina and Yonesawa, I first found large Bamboo plantations near the last place, about 1000 ft. above sea level, and 37° 55' N. Between here and Niigata the temperature of the coldest month must differ by about 3°, the latter place being situated near the sea. This gives about 30° F. for Yonesawa, or about the same as Yusawa. Now in Great Britain, the mountainous districts excepted, the mean temperature of the coldest month is nowhere lower than 36°."

Euonymuses as Wall Climbers.—Few plants have more beautifully marked foliages than the several varieties of *Euonymus*, but, unfortunately, if fully exposed, they are liable to injury from severe frosts. The best way to

utilise them is to employ them for covering walls when the protection afforded, and above all the thorough ripening which the wood gets, renders them safe, except in extremely inclement positions, and in that case they are easily protected by a covering of evergreen branches tied over them during exceptionally severe weather. *Euonymus japonicus aurea-variegatus*, *E. latifolius alto-variegatus*, and *E. ovatus aurea-variegatus* are beautiful for mixing with small-leaved Ivies. The plain green-leaved *Euonymus*, too, is a really beautiful shrub, and, when confined to a few shoots, soon covers a wall. By planting alternate flowering creepers, such as Banksian Roses for early bloom, and several varieties of Clematis, that may be allowed to mingle with the *Euonymus*, a pretty and lasting effect is produced, as the *Euonymus*-es look even brighter in winter than when the flowering climbers are at their best in summer.—J. GROOM, *Linton*.

Effect of Cyclones on Vegetation.—The facts noted by Mrs. Syme regarding the strengthening of plants by the cyclone in Jamaica, and published in *THE GARDEN* of January 1, 1881, are very interesting, especially the force, whatever it may be, which caused plants to bloom which had not done so before. The phenomena are probably due to an electric cause, and possibly the same one which gave origin to the cyclone. It would appear to be the same which makes seeds germinate profusely and vigorously immediately before a thunderstorm. These phenomena are well worth studying, as if their true cause were discovered it might be practically applied in making seeds germinate, plants bloom and set seed, and which do so with difficulty, and sometimes not at all.—E. B.

— I think much of what Mrs. Syme and Dr. Wallace attribute to cyclonic influence is rather due to the advent of the rainy season after a period of drought or the "dry monsoon." Everything that Mrs. Syme says points that way. All plants more or less are affected by the hot dry wind of the hot season in the Tropics. Leaves fall, stems get bare, herbage everywhere, except near water, is dusty and parched. In a few days after rains come all this is changed as if by magic. The change is apt to be stormy. If you notice a weathercock about the change of the monsoon it is very uneasy, veering about in all directions. The mercury of the barometer is equally unsteady. This goes on for a week, and then in sets the wet wind with a steady pressure, rain comes down in torrents, and in a fortnight's time trees and plants which looked almost dead and leafless break out into leafage and blossom almost simultaneously. Bare patches of sandy earth one would have sworn had been destitute of vegetation for years send up sheaves of *Hippeastrum* flowers and parti-coloured *Caladia* leaves in rich profusion. Lepidoptera and other insects abound, and birds which had hid themselves in the depths of the shady forest during the hot season flit amongst the Orange trees, or flutter about in the garden, frequenting most the flowering trees in quest of insect food. No doubt the wind acts beneficially upon vegetation in some cases by increasing the rooting power. I know even experienced farmers in Leicestershire and Norfolk who say that their Turnips never begin to "bulb" until after very windy weather. But when we look to the growth of timber trees all the world over we find that the finest specimens are those which grow in sheltered positions. If stern wind shaking was so marvellous in its effects, we might expect to find the finest trees in the most exposed regions; but we know that trees acquire a larger size in the interior of forests where they are surrounded by shelter on all sides than in exposed positions on hills or mountain sides. One of the most marked characteristics of vegetation of tree and shrub growth on mountain sides is its scrubbiness. I know that there are many fine trees now standing in clearings amongst low jungles abroad and on the margins of woods and in parklands and fields at home, but as a rule these specimens were not exposed until their growth was completed, and really after all it is astonishing how few of what are called "fine trees" in our parks and open places would be so considered by a timber dealer, who merely looks to the cubic measure and length of the bole. If fine straight timber is desired assuredly it is best attained by the nursing or shelter system. If wind was so beneficial, why build walls to our gardens? why incur trouble and expense to provide shelter belts for our hardy orchard fruit trees or for equally hardy *Coniferae*? It will be generally conceded that the Scotch Pine and the Spruce Fir are two of our hardiest *Conifers*; yet the finest existing specimens of them are and have been nurtured by the shelter of other trees, or by naturally sheltered positions. Exposure to wind may act beneficially in a way by inducing root-action, as in the case of the Turnip crops just alluded to, but certainly facts in Nature and common garden practice at home point the other way.

F. W. B.

English Names.—Mr. Meehan, in his *Gardener's Monthly* objects to these, on the score of there being more than one applied to the same plant, but this seems to us no reason whatever why people should not aim at having English names for their plants any more than the fact that we use and prefer one Latin name, while reference to a dictionary of plants or botanical book will show that it is only one of eight or nine different names applied by botanists

to the plant. We rather take an interest on the opposite side of the question, and enjoy a variety of English names for a plant, not necessarily that we should use them, but as illustrating its history and character. For instance, in Mr. Sargent's catalogue of trees he gives, and very wisely, the English names applied by the settlers, to different species in different states and districts, a plan that is interesting to us, and very often one gets from these English names some idea of the use or beauty, or situation in which the tree grew. The favour which *THE GARDEN* has shown towards English names seems to irritate a little the botanical mind; we are very sorry, but we feel assured that, no matter what difficulties are in the way, the future will see a recognising nomenclature of plants and all beautiful living things in our own tongue, which now is used by so large a number of people in many lands, and bids fair to be the most universal of languages.

THE GARDEN IN THE HOUSE.

DINNER-TABLE DECORATION.

THE accompanying illustration will give an idea of a simple and effective arrangement for this purpose sent us by Messrs. F. & A. Dickson & Sons, of the Upton Nurseries, Chester. A wooden circle, say 11 in. in diameter, is cut from a board 1 in. or so thick



and a rim of perforated zinc, $1\frac{1}{2}$ in. deep is fixed round it, and this forms the foundation for the reception of such plants as may be desired or preferred. An empty flower-pot, 5 in. or 6 in., as may be required for the centre plant, is placed in the centre of the board, and the space between the rim of the stand and the flower-pot is filled up with turfy peat and sand. This is so placed as to slope from the top of the pot to the zinc rim, and is planted with *Lycopodium denticulatum*, interspersed with *Panicum variegatum*, a graceful combination of form and colour readily maintained with ordinary care. To complete the arrangement the empty flower-pot is removed from the centre and replaced by a suitable plant. That shown in the illustration is *Dracaena hybrida*, and this may, of course, be changed at pleasure and removed when the stand is not in use.

GARDEN DESTROYERS.

THE ELM-DESTROYING SCOLYTUS.

(SCOLYTUS DESTRUCTOR.)

THERE are, perhaps, few insects about which there has been more discussion than about this beetle; the point in question is whether it is destructive to certain trees or not. If these insects are guilty, as most entomologists believe they are, they are certainly, as regards Elm trees, the most injurious insects with which we are acquainted, for these trees, particularly near London and other large towns, are often attacked by them, and when badly infested are nearly certain to die; thus far every one is agreed. This point which has been so much debated, and on which various well-known entomological authorities differ, is, whether the tree, being in a perfectly sound and healthy condition, is attacked and eventually killed by the Scolyti, or whether the tree, being unhealthy from drought or other causes, is only then attacked and its end hastened by these insects. To the practical gardener it makes a considerable difference which is the correct view of the case, for if, by keeping his trees in a thoroughly sound condition, they are not liable to be attacked, he can to a certain extent protect them; if good cultivation is of no avail, there is little he can do. The insects being small, and mostly hidden beneath the bark, he is generally unaware of their presence until the tree is so much injured that it is hopeless to try and restore it to health. Those persons who hold that the Scolytus does not attack healthy trees urge that it is generally the trees near large towns, which are, probably from want of fresh air and wholesome soil, in a morbid condition which suffer most, and that trees which had begun to wither from drought and yet showed no signs of injury from insects were soon afterwards attacked by Scolyti, and that the presence of much moisture, such as a sudden flow of sap, destroys them. Promoters of the other view claim to have proved that the perfect insects make their burrows into the bark of a perfectly sound tree, which allow its sap to exude and air and moisture to enter, bringing it into an unhealthy condition, in which state it forms a suitable habitat for the young grubs; the female then lays her eggs, and the work of destruction is rapidly completed. Whichever of these theories is right, and I certainly consider the latter to be the correct one, there can be no doubt that every one should do their utmost to destroy this insect; much, however, I am afraid, cannot be done unless very determined steps are taken.

When once a tree is attacked no outward application of any insecticide to the bark of the trees is likely to affect the insects beneath; a good application of liquid manure to the roots will, however, assist the tree in its struggle for existence. If a tree is very badly attacked, perhaps the best thing to do is to cut it down at once, and burn every particle of the bark to prevent if possible this insect multiplying and infesting other trees. In a paper read before the Entomological Society on February 1, 1858, Capt. Cox gives an account of an experiment he tried on some Elm trees in the Regent's Park. He operated on twelve trees, which were all more or less attacked, and seven were severely injured; out of the entire number only one died. Four years afterwards six had quite recovered, and in six years the eleven were completely cured. His plan was to pare down the bark with a draw shave until the galleries of the insect were laid bare, taking care that none of the grubs were left on the tree. He detected the position of the galleries by the small pieces of bark thrown out by the female whilst boring, some of which adhered to the entrance; and he calculated that 280,000 perfect insects must have been bred from one tree alone. Notwithstanding the apparently safe quarters of the grubs, they are often infested with a worm-like parasite, and are at times attacked by an ichneumon.

The beetles leave the chrysalis cases at the end of May or the beginning of June; they then eat their way through the bark and gain the outer world. After pairing, both sexes live by boring into the bark and feeding on the sap. When the female wishes to lay her eggs she chooses a rough place in the bark, where the opening to her burrow will be somewhat protected, and having worked her way through the bark, makes a long gallery between it and the hard wood. In this she deposits her eggs, about sixty or seventy in number, singly, a little distance from one another. Having thus laid all her eggs she retires to the entrance of the gallery and dies, leaving her body as a kind of plug to the hole.

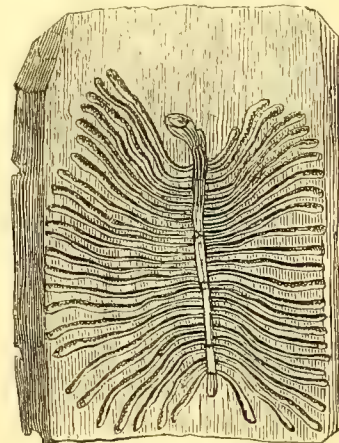
When the eggs are hatched, the little grubs begin feeding, and gradually work their way, eating as they go, in a direction nearly at right angles to the gallery in which they were hatched. As the grubs grow in size they increase the width of their burrows; they, however, never seem to interfere with the gallery formed by another grub, but, by working forward in a straight line, avoid breaking through the slight partitions which separate them from their neighbours. They probably assume the chrysalis state at the end of the summer, for the perfect insects, the grubs and the chrysalides, have all been found together in the same tree in August, whilst in November only the chrysalides could be found. The grubs are sometimes in such numbers that 100 have been found in a piece of bark 6 in. square. The insects remain as chrysalides during



The Elm-destroying Scolytus.

the winter and spring. In May and June they complete their transformation and appear as perfect insects. At first they are soft, tender, and almost colourless, but they soon gain their proper colour and hardness, and, eating their way through the bark, are ready to perform their part in the programme of Nature. This beetle is a member of the family Scolytidae, a family which is nearest related to the Curculionidae, or Weevils, and the Longicornes, between which it is generally placed in systematic lists. All the family are vegetable feeders, and many cause considerable injury to various trees.

The genus Scolytus contains six species, some of which attack Oaks, Elms, Ashes, Plums and other fruit trees, but *S. destructor* is by far the most destructive species. This beetle is about 2-10ths of an inch long, tolerably stout, and almost cylindrical, terminating



Scolytus destructor Galleries.

posteriorly very abruptly. The head and thorax are black and shining, the latter is very large in proportion to the rest of the insect, and is considerably wider behind than in front. The antennæ are brown, and each ends in a knob formed of the terminal joints; the legs are short and strong, and of a reddish-brown colour; the wing cases are pitchy brown in colour, very convex, and striated longitudinally. They cover a pair of wings which are very long and narrow when expanded. The grubs are nearly 3-10ths of an inch long when fully grown; they are white fleshy, and are much wrinkled transversely; they have no legs, and are usually in a curved position; their heads are horny, smooth, of a yellowish-brown colour, and are armed with a pair of strong jaws. The pupa or chrysalis is whitish; the limbs of the future beetle are distinctly visible through the thin skin in which they are wrapped.

G. S. S.

GARDENING FOR THE WEEK.

Flower Garden.—Although many sub-tropical plants answer well for turning out in exceptionally warm places when sown in heat in January, the majority of them do best when sown in the autumn. Cannas, Musas, blue Salvias, Dahlias, Wigandias, Abutilons, and others stored away for the winter may now be placed in heat for giving a supply of offsets and cuttings, and seeds of any kind may still be sown. For places of moderate pretensions, the graceful *Dracæna australis*, *Chamærops excelsa*, and *Yucca aloifolia variegata* should not be neglected, as they are not easily surpassed. Where large quantities of bedding plants are in demand, the stock of *Alternantheras*, *Iresines*, *Mesembryanthemums*, and plants of this class may be put into heat for furnishing the usual stock of cuttings. It will not, however, be well to take the cuttings of soft things too early, as many of them do best when struck quickly and grown away without a check. Hardy plants like the Mints, *Sedum Lydium*, and *Houseleeks* may be divided and increased to any extent in cold pits or frames, protected from rain and snow. Where the general stock of *Geraniums* is wintered in boxes, young plants should receive a little more water to encourage growth by the time they are potted off. A Vinery that is started about the beginning of February is a good place for wintering and starting them in. Old plants of the bronze and tricolor class should be cut back and kept in heat until they break. The cuttings will make nice plants for potting, next autumn.

Greenhouse.—Large plants of *Pyrethrum fruticosum*, the late-flowering *Eupatoriums*, *Weinmannia* and *riparum*, *Salvias*, and *Cinerarias* will now take liberal supplies of liquid manure at every watering. *Calceolarias*, *Cinerarias*, *Fuchsias*, and *Pelargoniums* will now take a good shift into light rich soil. Water sparingly after potting, but give the plants the benefit of a light position in a close pit, where they can have a temperature of 45° to 56°. Syringe the *Cinerarias* overhead every day, and feed as soon as they get re-established in the new compost. If *Fuchsias* taken into heat last month are now pushing freely, shake out, pot, and treat in a similar way for early flowering. Prune the plants into shape and strike the cuttings of favourite kinds for autumn flowering. If not already done, the stock of *Chrysanthemum* cuttings should be put in, also a good batch of the old scented *Geraniums*, as few plants are more appreciated when used in a cut state, or blend better with flowering plants when worked up on the tables in the greenhouse. Where old roots of the tuberous *Begonias* are plentiful, a few may now be started into growth and seeds may be sown in moist heat. The seed being very small, the pans should be firmly surfaced with silver sand and well watered before it is sown. Sprinkle a little dry sand over it and cover with glass or brown paper.

Pines.—The extreme severity of the weather having rendered incessant firing necessary for the maintenance of minimum heats, plants in pots, as well as the plunging material, will have been affected by its parching influence. To counteract the serious injury that will speedily follow take advantage of a bright hour, when the pipes are not very hot, for thoroughly watering the plants, especially those in small pots, also the plunging material, and damp the surface of the bed with the syringe, in order to keep the atmosphere in a healthy growing state. Look well to early *Queens*, now beginning to show their fruit, and use every means calculated to increase the size of the fruit and to induce them to throw it well out of the foliage. In light, airy houses, as all early *Pine*-houses should be, dew the plants over on fine days and keep the axils of the leaves nicely charged with clear diluted liquid, but guard against its reaching the underground roots, which must be regularly attended to in the usual way. Bottom heat, 85° to 90°; top heat, 65° to 70° by night, and 75° to 80° by day.

Successions.—Gradually increase warmth and moisture in succession pits. See that the balls are nicely watered a few days before the plants are potted, and have all materials, including clean crocks, pots, and loam dry and warm, ready for use when the proper time arrives. If fresh tan is likely to be wanted it should be placed in an open shed where it can be well worked and fermented before it is used.

Peaches.—Do not neglect the fertilisation of the later kinds of *Peaches* in the early house, and when all the fruit is set resume syringing with tepid water a few degrees warmer than the house. In mild weather give air at 60°, and raise the temperature to 70° or 75°, under gleams of sunshine; close early, and aim at 50° to 55° by night. Disbudding must now receive attention, and in the event of a single fly having gained a footing fumigate lightly once or twice at short intervals as soon as the young fruit shows signs of swelling. When fairly on the move rub off a few of the smallest and worst-placed fruit, in order to give strength to those intended to ripen,

always bearing in mind that *Peaches* nearest the base of the shoot and on the upper side are the most promising to leave for the crop. Examine the borders, and if old trees show signs of weakness top-dress with short manure and water with clear diluted liquid. To vigorous young trees give plenty of water, and defer the application of stimulants until they begin to feel the strain of the crop. Get all pruning and training finished, and retard trees in late houses by throwing open the ventilators when the weather is not very severe.

Figs.—Until we have a change to milder weather, steady firing to maintain the temperature given the other day will be the safest course to pursue. Run down the blinds at night, and counteract the drying influence of fire heat by introducing additional supplies of fermenting leaves. Syringe the trees twice a-day to keep down spider; stop all gross shoots at the sixth leaf; thin out useless spray to give young spurs and fruit the benefit of light and air as the season advances, and feed the roots with liquid manure. Encourage the trees in succession-houses by giving fire-heat and moisture through the day. Mulch inside borders and water with tepid liquid, but avoid an excess of moisture or high temperatures by night until the terminal buds show signs of pushing into growth. Trees struck from eyes last year may be encouraged with warmth and moisture. Remove all ground suckers. Pinch the points of the strongest side shoots and train the leaders to straight sticks.

Cherries.—Be guided by the state of the weather in the management of early-started trees now approaching the blooming period. When fire-heat is needed for the maintenance of the night temperature, 40° to 45°, with a little air, should not be exceeded, and in the event of a continuance of severe weather a few degrees lower will be preferable to sharp firing. As *Cherries* cannot be fumigated or syringed when in flower, see that the trees are quite free from insects when the blossoms begin to open. Pay daily attention to fertilisation. Ventilate freely without causing a draught, and avoid damping in dull weather. The past autumn having been so fine, we may assume that lifting and planting was performed at the proper time. If still in arrear, choose the first dry day for the completion of this work in late houses, using good turfy loam and old lime rubble. Drain well and mulch with manure.

Grape Room.—The weather through the present month having been very dry and intensely cold, the fruit is more likely to have suffered from aridity than an excess of moisture, particularly where the walls are not built hollow and capable of resisting severe frost unaided by sharp firing. If not already done, the bottles should be filled up with soft water to replace that taken up by the wood immediately after insertion. Look over the bunches and remove every berry showing signs of spot or decay. Open the ceiling ventilators when the atmosphere is dry. Keep the shutters closed at all times, and allow the temperature to descend to 40° when fire-heat is needed.

Cucumbers.—Winter fruiting plants renovated with fresh top-dressing and fermenting Oak leaves, as formerly directed, will now be in the best possible condition for passing through the present trying period. Counteract the ill effects of incessant firing by covering the roof at night. Keep the glass clean. Syringe all available spaces to keep down spider and remove old leaves to make room for young growths, which must not be stopped until we have more light and solar heat. The sudden change to weather of the most wintry character will not admit of more than the maintenance of minimum temperatures, but there will be short periods of sunshine which will raise the house to the maximum degree of heat, and this, combined with cleanliness and light cropping, will keep them progressing until we have better weather. Put in cuttings of *Telegraph*, sow seeds and pot on young plants if the hills or fruiting pots are not ready for them. Follow former directions with regard to making hotbeds, and, most important of all, the protection of fermenting material and soil from melting snow and cold rain. Where a good nursing-pit is at command do not be in a hurry to turn out young plants until the soil in manure pits and frames is in good order and danger from rank steam has passed away.—W. COLEMAN.

Hybrid Toads v. Slugs.—In last number of *La Belgique Horticole* for 1880, recently received, a correspondent gives an account of a visit paid by him to the nursery garden of a well-known experimental hybridist at Marseilles, named Mons. J. B. A. Deleuil, well known among foreign horticulturists, at least for his success in raising new varieties of *Agaves*, *Yuccas*, *Echeverias*, *Amarylids*, and *Begonias*, but who now seems to have carried his experiments from the vegetable to the animal kingdom, as, being much troubled and annoyed, as most gardeners are, by the ravages of slugs, ants, and worms amongst his favourite plants, he had recourse to toads to devour them, but finding them slow and heavy in their locomotion, and difficult to get to move from one part of the garden to another, and noticing the much greater nimbleness and activity of the common

frog (the delicate flesh of whose hind-legs is considered so great a delicacy in France), the idea occurred to him that if he could obtain a cross or hybrid between these two nearly related animals it might inherit the virtues of both its parents, to wit, fondness of destructive insects for its food, and nimbleness of locomotion in search of it. In his efforts in this direction, the correspondent of the Belgian periodical above mentioned asserts that Mons. Deleuil has been completely successful, and has obtained, as the reward of his experiment, a race of hybrid Batrachians, which are so effective as insect destroyers, both out and indoors, as almost completely to rid his garden of these destructive pests. It would be well if some of these useful cross-breeds could be introduced into English gardens, or if some of our naturalists would follow the example set them by M. Deleuil.—BOSCOBEL.

ORCHIDS.

CALANTHE VESTITA AND VEITCHI.

THOSE who possess a warm stove and are desirous of having handsome and lasting flowers in winter, either on the plant or cut, will find that these Orchids have few equals in the whole range of winter blooming plants. Moreover, it by no means follows that those who have not a collection of Orchids, or an especial house wherein to grow them, need be afraid of succeeding with them provided they have a warm stove, that is, a house or pit that is kept at night during autumn and winter at a temperature of 60°. Two or three degrees more will be none the worse, with a proportionate increase of heat in summer. I mention this matter of heat, for *C. vestita*, being a native of Burmah, and one of the parents of the hybrid *C. Veitchi*, consequently it is useless to expect large bulbs capable of producing proportionately large spikes of bloom without plenty of heat. There is another matter, too, in which these *Calanthes* differ from most other plants, and that is the after-flowering period, although for a time making neither root or top-growth, they do not like, even when in this condition, to be kept cooler than I have indicated, for they are never wholly at rest, as the buds existing at the base of the bulbs that are to form the next year's growth are during this time slowly increasing in size, and upon their being warm enough through this period depends their well-doing the season following, and if kept too cool after blooming the bulbs not unfrequently rot. Although the appearance of the plants is such as would lead to the supposition that in their natural state they are not epiphytal, but grow on the ground, there are no Orchids with which I am acquainted that are more benefited by being hung up close to the roof. When so suspended I have had spikes of *C. vestita* that bore over a hundred flowers each, having two or three side branches, and I never could get the bulbs near so large or floriferous when not hung up so as to get all the light possible during the growing season. Whilst blooming it is not necessary to keep them so near the glass.

Soil and Potting.—When I first began their cultivation I tried them in ordinary Orchid peat, old dry shaly cow manure, and charcoal or potsherds, and in some cases substituted turfy loam for the peat; I have also tried them in old Mushroom manure with crocks added, as well as in peat, and likewise in loam without any manure, and found little, if any, difference provided they were hung up, so that the tops of the leaves were within 1 ft. of the roof, and care taken that they were always shaded when the sun was on them, but never unless it was. They do not like too large pots, yet, when very strong and several bulbs are grown in a pot, they must have proportionate room, or the limited amount of material in which the roots are placed does not hold enough moisture to serve them from one watering time to the next. I used to pot them about a month or six weeks after the flowering was over, shortening the old dead roots back to within about 1 in. of the bulbs; the remaining portion helps to steady the bulbs in the soil until the new ones get hold. If the potting is deferred until new roots are visible it is necessary to be very careful with them, as if injured in the least the season's growth will be proportionately affected, as no root that is at all hurt will make any more progress. As soon as the new leaves got fairly unfolded I always syringed the plants overhead daily, otherwise they would have been liable to have become affected with spider, especially if grown amongst a general collection of stove plants. The pots must be well drained, as these *Calanthes* like plenty of water when they have got well furnished with new roots. Before this the soil should only be kept slightly moist. Towards autumn, when the bulbs have attained their full size, and are about to push up their flower-spikes, it is better not to give near so much water as whilst they are in full growth. By this means the leaves, which begin to turn yellow at the points about this time, will keep some life in them considerably longer than they otherwise would do,

a circumstance which not only makes the plants look better whilst in flower, but the flowers will be individually larger. By treating them so I was generally able to keep a portion of live leaf on them until the spikes had nearly opened all their flowers; the reason is this, keeping the soil drier about this period has the effect of preserving life in the roots longer. The natural habit of the plants is for the roots to die about the time the flowering begins, and so long as some life can be kept in them the leaves also preserve their vitality, which conjointly helps the flowers, that when both roots and leaves are quite gone have nothing to support them except the stored-up strength in the bulbs.

Calanthes of this class increase faster than most Orchids; bulbs that have attained even a medium size will generally produce two each from the base, and often a small one in addition from near the top, the largest bulbs, as in other Orchids, bearing the most bloom. To produce bulbs of a very large size capable of bearing spikes such as I have named especial treatment is required which causes some sacrifice in the increase. When I had got a larger stock than was wanted, I selected a few of the largest, and put them three together in shallow 8-in. pots, and only allowed each bulb to bear one growth, breaking the other buds that sprang from the base out, and also those that proceeded from near the crowns as well. This requires a little attention, as when strong they will keep on pushing up until the growth that is let to go has made some progress; by this means the whole strength of the bulb is concentrated into forming one growth. Anyone who has got these *Calanthes* in strong condition, and is desirous of having a few large spikes of flowers will not be disappointed if they will proceed in the above way. As I have already stated, these *Calanthes* will do just as well amongst ordinary stove plants, providing the stove is managed in accordance with the practice now found to be the best for stove subjects that need a good deal of heat, which is not to admit so much air as used to be given, and is still by many looked upon as necessary, but which has the effect of drying up the atmosphere too much and making it more congenial to the growth of red spider than it is to that of the plants.

T. BAINES.

ONCIDIUM FLEXUOSUM.

WHEN looking at any elegant and very serviceable old plant, one sometimes cannot help thinking that the introduction of such numbers of new ones is not an unmixed gain. Take, for instance, the larger variety of this *Oncidium*, which, for freedom of growth and an equally free disposition to bloom, coupled with the elegance of its flowers and the length of time during which they will last either on the plant or when cut, has scarcely an equal amongst yellow flowers, the colour now so fashionable. It is one of the very few yellow flowers besides Rose buds that look well in a bouquet, and it is equally effective in vases, stands, or any other combination of flowers; and yet it is so much beneath the notice of Orchid growers that I have no doubt there are many collections of these plants to be met with from which it is oftener absent than present.

Basket Culture in Stoves.—It will do quite as well amongst ordinary stove plants, under the general conditions they require, as in an Orchid house. Some of the finest examples I have ever seen have been cultivated in such company. Few Orchids have so determined a scandent habit, and the way in which it pushes out its roots in the air causes them to be much exposed to the attacks of woodlice and cockroaches; on this account it is best grown in a wire basket, hung up near the roof, a position which is also more favourable to the plants getting strong. I used to grow it in wide, shallow, galvanised wire baskets; these held about a score of pieces each, which, when put together, consisted of three or four bulbs to each piece; the baskets were lined with long Sphagnum and filled up with half-fibrous peat and half Sphagnum, mixed with some charcoal; in this way they remained undisturbed for two or three years, adding a little fresh material each winter before they commenced making growth; after the above time they were taken out of the baskets, each piece cut in two about the middle, putting the back pieces in a basket by themselves, and the leading growths by themselves also. Nothing more was done to them except a little fresh material put on the surface each year at the usual potting time.

Continuous Flowering.—This *Oncidium* does not require so much shade as many Orchids, but it likes plenty of water during the growing season, and should not be kept so dry in the winter as to cause the bulbs to shrivel, for it needs no drying up to induce it to flower. If, instead of cutting the bloom-stems away after it has first flowered in the spring, the tops only are removed, the old stems will break out at the joints and bloom again; in this way a strong mass such as I have named will keep on flowering a great part of the year, but, as a matter of course, when so managed it will not produce so full a head of flower as when all the growths are in bloom at a time,

yet the mode of treatment indicated gives the most continuous supply, and is so far an advantage where cut flowers are in regular demand. A well-bloomed good-sized example of this *Oncid* is so effective that even as an exhibition plant there are not many large groups of Orchids shown but would be improved by its presence; the bright canary colour of its flowers, so elegantly arranged on the plant, tell besides anything else.

A. Z.

ORCHID CULTURE.

IN all departments of gardening there are diverse and in some cases many ways of attaining the same object. It is so in *Phalenopsis* culture. Special cultural treatment cannot be judiciously applied to plants generally unless we can also be certain that other conditions or surroundings are in all cases similar. What is good treatment in one case may be the worst possible course to follow in another. To sprinkle *Phalenopsis* overhead with a watering-pot when they are growing in an already moist tank house is simply too much of a good thing; but in large, naturally dry, light and airy houses a gentle bedewing with a fine-rosed syringe at night and during the growing season only is very beneficial to free and healthy growth, as is also ample ventilation during warm nights from June to September. The syringing treatment is good in itself, but, like any other good thing, it may be overdone, and then, and then only, it becomes an evil, and one quite capable of doing harm on its own merits without any assistance from other equally potent sources of plant disease, such as "improper temperature" (letting frost into the *Phalenopsis* house, for example) or "imperfect ventilation." Quoting one or two extreme cases of damage having resulted from obviously bad treatment is almost sure to drive amateur beginners in Orchid culture to the other extreme. What is desirable before any discussion on Orchid culture can be of definite service to anybody is to fix the lowest mean temperature at which any plant will exist in good health, to which hygrometrical readings may be added. Air and light must in the main be left to the discretion of each individual cultivator. "Free ventilation," for example, to some gardeners and amateurs may mean throwing doors open and lowering sashes by the yard, which is, to say the least, giving a little more air than *Phalenopsis* require in our climate. What I want to know is the different readings of two corrected thermometers the one to be suspended at 6 in. from the glass of a hothouse, and the other at 18 in. below the glass, the one thermometer to be immediately below the other. As to the hints of "travellers and collectors," of course they must be subjected to some modifications "to suit our structures and climate." I find it extremely difficult to get any definite information on Orchid culture—principles I mean, and not details, which rarely fit two different houses, and hence are always to be regarded as likely to be as dangerous in some cases as they are beneficial in others. Perhaps it is yet too soon to expect that Orchid culture is an exact science but I heartily wish such a good practical grower as Mr. O'Brien undoubtedly is would sit down and tell us briefly the main principles on which the success of Orchid culture depends.

J. P.

Whalley Range.

Cool Orchids.—I should feel obliged if any reader of THE GARDEN would furnish me with a list of cool Orchids which would give a succession of flowers throughout the year, and state what greenhouse plants would be best suited for growing along with them. From notices which recently appeared in THE GARDEN, I observe that cool Orchids may be grown best in a house having a night temperature during winter of from 40° to 45°, and I should like to know what heating apparatus is recommended so as to ensure that the temperature should not go below these figures. My house is span-roofed, 24 ft. by 13 ft., with two rows of 4-in. pipes, forming a flow and return. The water is heated in a coil in a built stove; but during this severe weather it is almost impossible to keep the temperature above 38°, except by having the fire always clear and brisk. It is always desirable to have a stove that does not require frequent attention; and in my case I should like one that could keep up the heat for twelve hours without stoking.—J. C. D.

Bronzy-leaved Odontoglossums.—I do not think there can be any reasonable doubt about some varieties of *Odontoglossum* showing a tendency to become more bronzy in the bulbs and leaves than others, nor can, I think, any distinction be shown between the leaves and bulbs in this respect. The more bronzy colour of some kinds than in others, and in plants equal in every other way, was one of the first things which struck me when I began their culture, but it did not seem to me any more remarkable than the well-known bronzy habits of some varieties of the Pine-apple, which differs greatly in this respect. In both cases the colour is quickly intensi-

fied by exposure to the sun, and there is a limit beyond which one does not like the bronzy hue to pass, as it indicates an approach to the roasting stage. The dark colour is, too, a surer sign of health in plants that have not been shaded too much, than in those which have become bronzed by sudden exposure, say within a week or a fortnight.—J. S. W.

Orchids in Bloom at Brentham Park, Stirling.—

Angræcum sesquipedale	Lælia peduncularis	Odontoglossum Roezli album
Barkeria Lindleyana	Lycaste lanipes	Rossi majus
Calanthe Veitchi superba	Skinneri	roseum
vestita nivalis	alba	triumphans
Cattleya chocoensis	Masdevallia bella	Uro-Skinneri
Leopoldi	igneæ	Oncidium nicalosum
maxima decora	rubescens	Cavendishi
superba	superba	cheiroporum
Trianae	Veitchi grandiflora	cucullatum
Cypripedium barbatum	Mesospinidium vulcanicum	macranthum
Boxalli	Odontoglossum Alexandræ	ornithorhynchum
insigne	Andersonianum	serratum (spike 11 ft., full of bloom)
Maulei	bitioniense superbum	Phalenopsis grandiflora
Sedeni	Bluntii	rosa
venustum	cirrhosum	Pilumna fragrans
Dendrobium album	cristatum	Pleione humilis
bigibbum	Dawsonianum	Saccolabium giganteum
hedyosmum	Donianum	violaceum
heterocarpum	gloriosum	Sophranopsis grandiflora
japonicum	Insleayi leopardinum	violacea
Epidendrum paniculatum	Londesboroughianum	Vanda lamellata Boxalli
Ionopsis paniculata	pardinum	Warrea tricolor
Lælia alba grandiflora	Pescatorei	
anceps	Roezli	

—JOHN MCLEOD.

Orchids in Yorkshire.—My plants of *Dendrobium Wardianum* are just coming into bloom again, but they will not be so good this year as they have been; I have had as many as 800 blooms open with from twelve to forty flowers on each growth. My neighbour Mr. Culley has a grand piece of *D. Falconeri* showing a mass of bloom; I cannot say how many. Our *Phalenopsis* are pushing flower-spikes; they too will be small. One plant of *Angræcum sesquipedale* is bearing a fine spike of very large flowers. *Vanda Cathcarti* is just coming in, four flowers being on the spike.—C. J. W.

The Indian Laburnum.—The pendulous raceme of *Cassia* (*Cathartocarpus*) *Fistula* (page 78) is faithfully figured, and the peculiarity of the young legume projecting in a curved sweep from the flower well shown. It is probably from a West Indian specimen, as the hardy variety so common in Mysore blooms freely in March and April, after the last year's legumes have all been pricked off, and before the appearance of the new leaves, which are much smaller than those described, and of a very delicate, bright glossy green. In the middle of the hottest weather at Bangalore these shrubs, or dwarf trees, are entirely clothed with a profusion of drooping racemes, with golden flowers of very delicate fragrance, standing separately at the end of long pedicels, that produce a striking effect. But whether in flower, or in early foliage, the plant makes a grand show, and, from its habit of growth, can be trained for effective exhibition. It is, however, too common there, and only a stray attempt has been made to control it in this direction. It grows wild in the jungle, where, with the little shelter the neighbouring trees afford, its racemes are larger, and of more open texture, and the flowers of greater fragrance than in the open, as any one who has ever ridden up the Devaroy Droog Ghaut in the early morning of a hot April day will gratefully remember. It is hardly good gardening to allow the ugly "pudding pipe" legumes of last year to hang while the current year's blooms are in such beauty, although it may be useful for conveying knowledge. From the dwarfer growth and the looser texture of the golden racemes of the Mysore variety, it is possible that seed from that part of the world might be acclimatised here and the young plants trained with skill and care into shapely bush standards, if I may be allowed such an expression. A dry heat seems to suit it best, and a red sandy loam in which good leaf manure has been mixed would be appropriate soil for it. If the flowers and subsequent foliage can be produced in anything like their wild luxuriance, the plants would make a most attractive display and be a novelty that would command attention.—J. P.

Changed Times.—The list of the old London nurseries published in THE GARDEN (p. 110) is, as you say, certainly defective. Messrs. Fraser's, at Lea Bridge, is omitted, and so is Messrs. Denyer's, at Brixton, once celebrated for its Roses. Under Chelsea no mention is made of Messrs. Knight and Perry's great establishment, now Messrs. Veitch's, nor under Hammersmith of Messrs. Lee's, one of the oldest nurseries about London. Gray, Adams, and Hogg's place at Kensington is not enumerated, nor that of Messrs. Ronald's, of Brentford, and many others that are omitted might be named. George Glenny's gardens, or rather exhibition ground, the last time I saw it, contained a couple of giraffes, its only tenants. In the daytime



A TROPICAL JUNGLE (SUMATRA).

they were out of doors, and at night were housed in the "Flower Hall."—M.

A TROPICAL JUNGLE.

IN their normal state the dry lands of most tropical countries are covered with immense forests or natural woods, but in course of time the inhabitants cut or burn down these in order to cultivate their food plants in the clearings. The land thus gained, being rich in the accumulated forest debris of past ages, possesses wonderful fertility for some years, and seeds or plants, once introduced into this fresh or virgin soil, grow with a vigour and luxuriance unknown to dwellers in less genial climes. Land being abundant, economy in its use is the last thing thought of, and instead of manuring a patch as it becomes exhausted, it is easier to abandon it and make a fresh clearing. Once abandoned, a clearing becomes the habitat of the more weedy and robust of the surrounding or introduced vegetation, and the result is a vegetable chaos of rank impenetrable growth, generally known as "jungle." The accompanying engraving gives a good idea of a Sumatran tropical jungle, through which a path, however, is kept clear from the European manager's house or native village to the Tobacco plantations beyond. Everywhere in tropical countries it is usual to find much jungle growth on the old clearings around villages, and after lying thus fallow for a number of years it is usual to cut and set fire to the brushwood, so to speak, and again bring the plot into cultivation.

At the Cape of Good Hope after clearings are thus made it is not unusual for Gladioli, Satyriums, Ixias, Sparaxis, and other bulbous plants and Orchids to spring up as the first crop on the newly stirred soil. The taller rank, scrubby, forest growth had, by robbing them of the necessary light, air, and moisture, kept the more lowly bulb and tuber growths in abeyance. This check once removed, however, the rapidity and luxuriance with which lovely bulbous flowers spring up is, I am told, marvellous. In the east I know similar effects take place, and after forest or jungle fires, a few weeks of rainy weather is sufficient to carpet the blackened earth with a profusion of terrestrial Orchids, Burmannias, Droseras, Nepenthes, and curious Plumales and Ferns, which previously had been crowded out in their struggle for existence, or were scarcely noticeable among the larger growth of shrubs and trees. Again, at the Cape swampy ground forms a suitable habitat for Richardias and Aponogetons and other water weeds, which go to rest in the baked mud of the dry season, and again spring into leafy and floral beauty under rainy weather. In the east the Padi or Rice fields are likewise not unfrequently enlivened by myriads of little white and blue Water Lilies, while pink-blossomed Nelumbiums and delicate blue Pontederias grace every wet ditch, contrasted with little fresh green meadows of the Water Fern (*Ceratopteris thalictroides*), rosy, thick-leaved Hoyas, rambling *Convolvuli*, and *Nepenthes gracilis* or *N. Rafflesiana* grace the roadside vegetation with wreaths of flowers, foliage, and curiously-shaped urns of the most lovely colours imaginable. In the early morning *Passiflora foetida*, an introduced weed, drapes bushes here and there with festoons of white flowers and egg-shaped fruits, each enfringed in a calyx which is so daintily cut as to remind one of a Moss Rose in the bud stage. In the engraving given herewith the tangled jungled growth is admirably depicted, and consists of broad wind-torn Musas, Freycinetias of curious port, Palms of the Cocos and Arengi type, clumps of dwarf Bamboo; and in the foreground to the right a tangle of what may be *Convolvuli*, or, perchance, the ubiquitous *Piper Betel*, the leaves of which are universally employed as a stimulant by the Malayan and Indian races along with the hard albumen of the Betel Nut (*Areca Catechu*). The only remnant of the normal or forest growth is the giant tree which towers skywards in the centre of the picture. This has, perhaps, been spared owing to the partiality evinced for it by the wild bees of the surrounding country, who build their nests in its smooth branches. These nests are valued more for their yield of wax than for the honey which they contain, this product being extensively collected and exported from Borneo, Sumatra, and other Indian islands. It frequently happens in clearing the old forest off by fire that some of the larger trees escape; others again, as Bee trees, Durian, and other fruit-bearing trees, are spared for the sake of their produce, or as landmarks; nay, perchance, even for ornament alone, for it is a too prevalent notion that savage life is purely utilitarian,

The virgin forests of Sumatra are every day giving way to the Tobacco plantations of the Dutch settlers, but the vegetation of the island is peculiarly rich in Orchids, Palms, *Nepenthes*, and Ferns, and, like the Celebes group, has not yet been in any way thoroughly explored. Baccari visited the island some years ago, and met with some remarkable botanical curiosities on the coast mountains, one of which deserves notice as having been found in that island at an elevation of 9000 ft., namely, one of our own filmy wildings, *Hymenophyllum tunbridgense*. F. W. B.

THE FRUIT GARDEN.

FRUIT CULTURE FOR PROFIT.

Formation of an Orchard.

Success in fruit culture is principally a question of soil and shelter, and if the first is fairly suitable, and the latter either present or capable of being supplied, success, under fairly good management, will in general be the result. The districts in which fruit trees seem most healthy and fertile are, as a rule, undulated, and it is from the sunny slopes, avoiding the bottom lands, the best crops are obtained. A planter with large means and resources should select a site for his orchard on some gentle declivity sheltered from the prevailing winds. In such a position he may plant largely, for spring frosts will be less hurtful than elsewhere, owing to the cold air rolling down into the valleys leaving the hillsides free from its baneful effects. For all plantations of fruit trees shelter, as I have said, is most important; so much so, indeed, that where it does not exist it will pay to create it, especially if the area of land to be planted is considerable. Belts or groups of Hazel and Larch, with a few Oaks or other trees of permanent character intermixed to form the future grove, will be both useful and ornamental if rightly designed and properly carried out; but the sheltering groups should not be placed too near the fruit trees. Not less than 50 or 80 yards should intervene to separate them, as a fruit tree, no matter how well developed, stands no chance in competition with an Oak or Elm; not only will the roots of the latter spread so as to rob the fruit trees, but the numberless leaves of large spreading trees when too near influence the temperature and otherwise render the situation less suitable than it otherwise would be. Ash trees should never be planted or be permitted to grow near fruit trees, as their roots spread so far and impoverish the soil so much more than those of most other trees do. It is true I have seen Apples and other fruit trees flourishing in belts and shrubberies and in the outskirts of woods, but there were no very large trees near them. So long as the fruit trees can have light and air on all sides, no great harm will be done. But much more might be effected in regard to fruit culture than there is without going to the expense of creating new plantations for shelter. Any one with a knowledge of the subject, and who has given much thought to it, will have no difficulty in pointing out plenty of warm snug corners on every estate and on almost every farm where it would pay to plant fruit trees—some gently rising knoll in the corner of a field, it may be, sheltered by hills, hedges, or coppices; such a position may not afford space enough for a large orchard, but supposing one of those sheltered nooks is capable of holding, when planted, one doz. or two doz. of Apple, Pear, or Plum trees, if the ground be well prepared and the planting well done, the trees will soon add immensely to the value of the land. It may be said that fruit trees planted in positions away from a dwelling would have their produce stolen, and so perhaps it might if only a few trees were planted, but not if the matter be taken up generally. If every one who has a suitable site and is desirous of improving his property would plant fruit trees, the novelty of such plantations would wear off and fruit would be so plentiful that even if a few were taken they would not be missed. If a person plants an orchard at present he seldom or never takes into consideration the question of shelter. It is customary to plant the orchard near the dwelling, and so there it must be, although probably the house may stand at the bottom of a hill where hoar frost lies thickly in spring, while the higher ground is free from it. I grant it is a pleasant sight in spring to see a village farmhouse or cottage embowered with fruit trees, and when the village stands half-way up the slope such a position is suitable enough; but the risk of destruction when the trees are planted in the bottoms

of the valleys is, as I have shown, far greater than when the situation is higher. It is a well-known fact that plants of a tender character will survive on a hillside while in the valleys they are cut down. Of this Potatoes furnish in spring plenty of evidence. Groups or groves of Apples, Pears, and Plums may be set down in corners of either arable or Grass fields, and if none but tall standards are used no additional fence will be required; of course, a fruit tree must be guarded from sheep and stock, but otherwise the field that has been cultivated may be cultivated still, only the trees should be planted at rather wider intervals—say, from 24 ft. to 30 ft., and the same thing may be done in the case of Grass land. In both instances the land should be trenched or ploughed as deeply as it will bear, and the Grass land should be fenced for two or three years with hurdles, as young trees grow faster where the surface is cultivated than when it is immediately laid down to Grass. I consider shelter to be even more important than good soil, for I have seen good fruit grown on inferior soil well sheltered; but good soil will not always suffice to insure a crop when much exposed to cold winds. A good depth of loam over clay, red sandstone, or, indeed, almost any kind of subsoil, will grow good fruit. Half the old fruit trees in the country are perishing either from want of drainage or from poverty, having long ago consumed all food within their reach. Assuming, therefore, that there is from 20 in. to 3 ft. of good workable fertile soil resting on a dry bottom, or one capable of being drained, fruit trees ought to thrive; good drainage is imperative, for in a wet soil fruit trees soon become covered with Lichen and Moss. It may be taken for granted, if the loam is of a heavy adhesive character, that for fruit culture it will be the better for draining. The plants on such land may at the same time suffer from drought in summer, and yet the land be too wet in winter for the roots of trees. Draining not only lays land drier in winter, but it also, when followed, as it ought to be, by deeper and better cultivation, makes it support whatever is growing on it better in dry weather. Land that is well prepared by deep cultivation cannot be overdrained, as the deep working and intermixing prevents cracking and makes it more retentive of moisture—that is, it checks evaporation, and I need not say it is far better for any crop to have the surplus moisture pass through to the drains than have it lifted by evaporation from the surface. Any complaint made of land being injured by draining is a sure sign that the surface only has been worked. Draining, unless followed up by better culture, may do harm. Some years ago I was shown a Grass field that was said, and rightly too, to have been injured by draining. The field had formerly produced heavy crops of rough, coarse herbage, which, after the land was drained, became lighter from the Rushes and coarser Grasses dying out. Had the surface been scarified and well manured, and a renovating mixture of seeds sown, the field would have been permanently improved, and would have supported stock better than it had ever done previously. Draining is only one item in the improvement of land, but it opens the way for and renders others possible.

Draining and Planting.—For draining orchards or fruit gardens the pipes used should not be less than 3 in. in diameter, and the mains proportionately larger, in order to insure a rapid clearance of water in winter. The drains should not be less than 4 ft. deep; the distance apart at which they should be placed will vary according to the character of the soil, and if 3 in. or 4 in. of stones can be laid over the pipes before the earth is filled greater efficiency will be the result. Brushwood will have a somewhat similar, though less permanent, effect than stones. After the draining is done the land should be well broken up; too many in planting orchards are content to dig a hole and stick the roots of the tree in it. For deepening and intermixing the land the spade is the best implement; but where planting is done on a large scale, the plough and cultivator would probably effect a saving, and if steam can be employed for smashing the soil up so much the better. Few seem to realise how great is the necessity for deep and thorough tillage for fruit trees; many think they have done all that the case requires when they have broken up the ground for 1 ft. or 2 ft. in immediate contact with the roots. Now, I am convinced one of the chief lessons we all have to learn is to take more pains in preparing the site which orchards are to occupy. Just consider the length of time, if all goes well, the trees will have to grow on it. How is it possible for young trees moved from the deeply cultivated nursery? Nurserymen understand their

interest too well to grow trees in shallow, unworked soil, and rammed into a hole barely large enough to contain their mutilated roots to flourish, and yet that is the way in which many orchards have been and are still planted. No doubt we rightly at times complain of our climate and the difficulties attending bad seasons. But depend upon it the trees in thousands of instances do not have a fair chance to work up strength of constitution to enable them to resist unfavourable climatic influences. If fruit trees are to flourish and reach a good old age, and at the same time perform the work expected of them, they must have a better start than is often given them in field culture. When the land is well broken up and intermixed, the moisture and temperature are more equable than when the trees are planted in holes, no matter how large they may be. There are, of course, cases in which fruit trees are planted on old pasture land where the objections to its being broken up would be insuperable; then the holes should be made not less than 6 ft. in diameter. Planting trees in holes in land that has not been moved is only an enlarged system of pot culture, and as a larger and better tree can be grown in a large pot than a small one, so on the same principle the hole in which a fruit tree is planted should be as large as possible if the ground cannot be all broken up. In large orchards of mixed fruits, the Apples, being the hardiest trees and the latest bloomers, should be planted on the windward side, so as to shelter their earlier blooming neighbours; then should come the Pears and Plums, and lastly the Cherries. Apple trees in sheltered hedgerows often bear a crop of fruit when those in the orchard are bare; and where the hedges are kept in good order, I do not think there is any valid objection to their being so planted. Put in the fruit trees when the young Thorns are planted, so that they may grow up together. The advantage of planting trees in such situations, apart from their picturesque effect, is their being effectually guarded from stock, and as the site of the hedge either is or should be well prepared, the young trees generally do better than when planted in orchards. There is so little expense in the case of hedgerow trees, that I think something more might be done than there is in that way. It would hardly be wise to plant in hedges by the roadside, but in those that separate fields from each other, and that, perhaps, may be in view of the house, Apple and Plum trees would not only be profitable, but add to the landscape effect.

Orchards on Grass are very common, and there is, so far as I know, no objection to them; but for the first few years of a tree's life if the surface of the land is cultivated the young tree will grow faster than it otherwise would do.

The Apple.

Standards.—The Apple is one of the most important fruits which we possess, and although there are certain districts in which the trees flourish better and attain larger proportions than in others, yet it may be and is grown with a fair amount of success in most parts of the country. I have met with orchards in counties not celebrated for their fruit culture where the trees have been as large and as fertile as in the best parts of Worcestershire or Herefordshire, simply because the planter had selected a good site where the soil was suitable and the shelter good. Apples should have a soil not less than 20 in. deep, though, of course, the best results will always be obtained on the best land. Standard trees on clean healthy stems 6 ft. high are best for orchards to which sheep or cattle have access. For reasons already stated, the trees will thrive best if the whole of the land has been deeply stirred some months previous to planting, which should be done in autumn not later than November, if possible. For the first few years the ground between the trees should be cropped with Potatoes or something that necessitates frequent stirring early in summer in order to let in solar warmth to encourage healthy root action. When the trees have made a good start Grass seeds may be sown, but the stems must be protected before sheep get amongst them, and if cattle have access a good substantial guard should be erected round each tree; but I think it a mistake to at any time let cattle browse in orchards, as they are constantly injuring the lower branches. There is not the same objection to sheep, as the stems can be guarded in a cheap and simple manner, either by tying thorns round them for 3 ft. or 4 ft. up, or what is better make protections with deal laths in the following manner: Procure a number of 4-ft. builder's laths and a ball or hank of rope yarn. Cut the rope yarn into pieces about 2 ft. long or so; select a lath and tie

a piece of the yarn round each end and another piece in the middle, making the knot in each case on the same side, and leaving the ends of the yarn of equal length when the tie is made. Then take another lath, place its edge against the knots in the strings, pass the ends round the lath, and secure it by a knot at the opposite edge, and so on, adding as many laths as will be necessary to reach round the stem of the tree, leaving room for growth. A number of these screens could be made in a short time by two people, and neither sheep nor rabbits could injure the trees so long as the protections continued in good condition, which they would do for several years. It will be obvious that if Apple trees are planted on good land, simply breaking it up deeply after the draining and fencing has been done will be sufficient, and no one would plant extensively on any but suitable land. For purposes of home supply, however, some may desire to form a small orchard where the subsoil is not exactly suitable. In the latter case the bad subsoil should be taken out, carted away, and better soil substituted. Or it may often happen (where expense is no object and where horses and carts are at hand) that an unsightly bank may be removed and spread over the intended site of the orchard to the depth of 2 ft. without any disturbance of the land covered beyond digging it over, and so an excellent bed be made for the trees.

Selection of the Trees is an important matter. For orchard planting they should be grafted on the Crab, and none but those with straight, stout stems, free from all canker or blemish, should be planted. The sooner they are planted after they are received the better, and all planting should be done a month before Christmas if possible. At any rate, the selection should be made early in autumn; even if they cannot be planted at once, the roots should be trimmed and laid in by the heels. Such trees usually do better, and become established quicker than those brought home after Christmas, even if planted directly they arrive. The reason is the wounds are healed, and new roots soon spring from the places to which they were pruned back. Moreover, as in nurseries the principle of first come first served is observed, those who buy their trees in autumn have the pick if they like to take the trouble to select what they buy. Fruit trees should never be allowed to lie about with their roots exposed. Many a young tree has a hard struggle for existence from this cause, and the employes in nurseries are not always free from blame as regards this matter. A sharp knife should be used to trim the wounded parts, making the cuts as short as possible. In planting the roots should be spread carefully out and be covered with mellow soil, care being taken not to bury the collar of the tree too deeply. The depth at which it was planted previously will be some guide in regard to this matter. If the soil is fairly dry the feet may be used to press it firmly round the roots, and the tree should at once be staked. The part of the stem that comes in contact with the latter should be secured from injury by placing some soft material between it and the stake. Mulch over the roots with some half-decayed stable manure. If the land be fairly good no manure need be used when planting, but it should be manured well between the trees so long as it remains in cultivation, and even afterwards it should be kept in good heart. It should not be forgotten that the soil of orchards on Grass is bearing a double load, and should receive liberal treatment. Simply allowing a sheep to graze, which is generally all the manure it receives, is not sufficient. Tall standards should be planted at distances varying from 18 ft., in the case of moderate growers, up to 24 ft. in that of more vigorous kinds. In this matter, however, no hard or fast lines should be observed, as it is best to vary the distances according to the quality of the soil. Standards with stout straight stems 6 ft. high rearing their heads aloft and spreading well out on all sides are most profitable trees for large plantations, but they represent only one phase of Apple culture, though a most important and profitable one.

Dwarf Trees on the Crab, or the free stock, and also on the Paradise, have their uses in a country so variable in its soil as that of England. The planter of an orchard of tall standards will, if he lives long enough, have a valuable property if the work be well done and the right kinds planted, but he cannot expect to reap any immediate profit from it; he must wait patiently for the result. But those who plant dwarfs on the Paradise may eat of the fruit of their trees in a short time, and this will have weight with some; besides, small trees may be planted where tall ones would not answer. I cannot conceive a position unfitted, with a

moderate amount of labour, for Apples on the Paradise, and this forms their chief value, their adaptability for inferior situations for which large spreading trees would be unsuitable. Of course the Paradise is best fitted for small gardens, where they should either be planted in beds or groups from 4 ft. to 5 ft. apart, or on borders especially reserved for them near the paths, but in either case nothing should be planted over their roots, and the surface of the soil as far as their roots extend should be mulched with manure in summer in order to retain moisture, as the Paradise is a moisture-loving stock, and, owing to its fibry surface-rooting character, it cannot easily run down for moisture, and hence the importance of the mulching. This stock has doubtless been condemned in many instances because it would not submit to the rough treatment of digging and delving about its roots, an operation to which Apple trees in gardens are usually subjected. I hope the time is coming when fruit trees will be considered of sufficient importance to have a compartment to themselves, and not, as now, have to struggle for existence amongst other crops whose necessities compel the cultivator to dig amongst them, driving their roots downwards in self-defence. Dwarf Apple trees on the free stock or the seedling Crab will make large spreading trees and bear a great quantity of fruit. There are some advantages in planting such trees, especially in windy situations, as, being dwarf, the wind does less injury to the blossoms in spring than it otherwise would do, and there is not so much of the produce blown down prematurely in autumn. In large fruit-growing establishments there is room for all the various forms of training, and it is a decided advantage to have them all, for I have known seasons in which when standard trees in the orchard were bare of fruit, dwarfs in the garden were well cropped and *vice versa*. It is simply having two or three strings to one's bow instead of one. Dwarf trees, being in a measure restricted in growth, require, however, more attention and care. They should, in fact, be kept well in hand. And to this end, if the subsoil is unsuitable, no matter whether it be hungry gravel or cold plastic clay, some means should be taken to render the bottom impervious to their roots; except this is done, the roots will the first dry summer, unless the surface is heavily mulched, run down in search of moisture, and the system of the tree will become disorganised. There are various ways of keeping the roots out of a bad subsoil, such as paving with stones or bricks laid in cement, 4 in. or 5 in. in thickness of concrete laid over the bottom of the station, broken stones to the depth of 6 in., with a mixture of fresh lime and ashes watered in and rammed down firmly, answer the purpose. In short, whatever can be most readily obtained in the neighbourhood should be used. In extreme cases the trees may be planted a little above the surface on slightly raised mounds; but the objection to this is they are apt to suffer in dry seasons from drought, and if the land has been drained there should be no necessity for it. There is still another system of training Apple trees which, though old-fashioned, is yet excellent, and that is the espalier. For the production of regular crops of handsome high-coloured fruit, I know no system of training equal to it. The trees are at all times immediately under the eye; a single glance tells when the finger and thumb or the pruning knife requires to be called into requisition. I grant, however, that as regards these there must be a considerable outlay at first. A stout wire fence costs money, but when once erected it will last many years if kept painted. Espaliers are commonly trained from 4 ft. to 5 ft. high, but there is no reason why they should not be 5 ft. or more high, as the space upwards costs nothing. In large gardens 6 ft. or 7 ft. is none too high. The wires should be about 10 in. apart and the same distance from the ground, as the fruits on the bottom branches when near the ground are deficient in colour and often splashed with earth. Dwarf trees on the Crab will require spaces of from 18 ft. to 24 ft. Such trees in good land make fine large heads, and it is a mistake where the soil suits them to adopt any dwarfing system of treatment. Espaliers also should have plenty of room allowed them. From 16 ft. to 20 ft. will not be too much, and in some cases vigorous growers may have more.

E. HOBDAY

(To be continued.)

Apple Culture for Market.—I have been much struck with the enormous importations of Apples into this country from America. Now, it seems to me that it should be unnecessary for us to pay so much away every year for what might just as well be grown at our

very doors. Would any of your practical readers kindly give me a few data to go upon with regard to the management of Apple orchards? Such as, for instance, the rent of land per acre in Kent or Surrey, not more than forty miles from London; the probable cost of labour required; and the net returns to be expected per acre. Such orchards I believe pay very well in the Maidstone district, and I see no reason why if it pays Americans handsomely to grow Apples and send them 3000 miles to us, it should not pay to grow choice Apples in the vicinity of a practically inexhaustible market.—ANGLO-AMERICAN.

WALL SPACE FOR FRUIT TREES.

A CORRESPONDENT (p. 77) wishes to know what length of a wall 10 ft. high would be required for certain trees, which he names, when fully grown. The Peach, Apricot, Cherry, and Plum are generally trained in what is called the fan form, and a fully grown tree so trained on a wall 10 ft. high should extend 10 ft. on each side of the stem, so that it would represent upon the wall just the half of a circle, the radius of which was 10 ft. Such trees, would, however, require to be 20 ft. apart to admit of this development. But as most people are anxious to have their walls covered as speedily as possible, for a wall not more than 10 ft. high 16 ft. apart might be a reasonable distance; this would allow each tree a lateral extension of 8 ft. on each side of the stem. Pear trees may also, if desired, be trained in the fan form, but the horizontal in their case is generally preferred. Whichever form, however, is adopted, the trees may be planted about the same distance apart as has been recommended for Plums, &c. Horizontal training is effected by leading a rod or cordon from each side of the vertically trained stem lengthways along the wall at the distance of 1 ft., or say four courses of bricks from each other. But as not more than three shoots can well be developed in any given year, that is, a shoot to the right and one to the left, together with one as a leader, it follows that some considerable number of years must elapse before even a 10-ft. wall can be fairly covered by this method. By adopting the following plan, however, a wall may be covered in a much shorter time than would be the case if the horizontal system was followed. Plant maiden Pear trees on Pear stocks at a distance of 7 ft. apart, allow each tree to produce two shoots only, and train them vertically for the two first seasons after planting, when they should be lowered into a horizontal position, one shoot on each side of the stem, at a distance of 1 ft. from the ground. These rods will meet each other, and may, if desired, have their extremities united by grafting, so as to form a connected cordon along the bottom of the wall; from that train seven of the best placed shoots from each tree vertically at a distance of 1 ft. from each other. These shoots will generally grow rapidly, and the wall will become covered in less than half the time that would be required to do this by following either the fan or the horizontal systems of training, and the trees, with proper treatment, will prove equally fruitful.

P. GRIEVE.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Recessed Fruit Walls.—In Mr. Groom's remarks on serpentine walls (p. 78) allusion is made to my recessed wall as looking well on paper, but of doubtful utility. I am afraid there are many theories that appear well enough on paper, but are visionary in practice, and, perhaps, I may be allowed to state that there appears more sound than sense in the reiterated assertion that a fixed coping is detrimental to wall trees, inasmuch as it prevents the dews and genial showers, &c., from benefiting the trees. According to this theory, every drop of rain or moisture of any kind is supposed to fall from the clouds, like globules of lead, unvaryingly perpendicular, and that there is no atmospheric motion to divert a rain-drop from that course; that there are no driving storms of vapour, mist, or rain, and that the beautiful Roses and creepers, on the "rectory" with its overhanging eaves, or a wall with fruit trees under a coping will not succeed for lack of dews and vapour, &c. This idea is certainly fallacious. Whoever, after rain or a snowstorm, has found it driven yards up a passage or into an archway need despair of a tender tree in a slight recess perishing from want of vapour and rain. Nineteen out of every twenty showers that fall to the earth fall at a very acute angle, and often, by the force of the wind, are driven horizontally. Rainfalls in our climate do not fall on us like the dew on Hermon, and if the windows are left open the dews and the gentle showers will now and then find their way into a bedroom, and how much more so into a shallow recess. One of the advantages of the arched or recessed wall, which appeared in THE GARDEN was the ease with which each recess could be covered with netting or bunting compared with the difficulty and labour attending the same process in the case of an ordinary wall. Moreover, in all gardens

where wall trees are well cared for, there is generally a water-engine, and, I would ask, If trees cannot be supposed to thrive under an ordinary permanent coping, how do Peaches and Nectarines thrive when wholly under a canopy or coping of glass, as in houses, often with immovable roofs?—THOS. WILLIAMS, Ormskirk.

Gros Guillaume Grape.—"Hibernian" (p. 75) asks for some one to tell him the difference between Gros Guillaume, Barbarossa, and Seaciffe Black. I do not answer his question, for, judging by the way in which it is put, he evidently already knows there is none. I would, however, remark that it is to be regretted that a stop cannot somehow be put to the misleading practice of giving several names to the same variety of fruit. There are occasions, doubtless, when a second name is given innocently enough through the variety and original name having been lost sight of for some time, but with the variety in question this excuse cannot possibly apply, particularly to the "improved" variety that "Hibernian" hints at, and which, for the past two or three years, has been put into commerce as such without even so much as a word as to the manner in which such "improvement" was effected. In the interest of the trade and profession generally, would it not be well when these "improved" varieties, either of fruits, vegetables, or flowers, are announced, to demand chapter and verse regarding the way in which such improvements have been brought about. Some such procedure would seem to be required to prevent our being inundated with so-called "improved" kinds that mostly turn out to be the old ones, the word "improved" being the only change that has occurred regarding the variety.—W. W. H.

Standard Gooseberries.—Gooseberry trees grown as standards may occasionally be seen in English gardens, and are found to answer very well, the quality of the fruit being quite equal to that produced when the ordinary bush form of training is followed. There is also the advantage of being able to thoroughly protect the trees from birds, as nets may be drawn down under them and tied closely to their stems. When the head of foliage is raised some 3 ft. or 4 ft. above the ground level, pruning, gathering, and the destruction of insect pests are much facilitated. Considering the advantages to be derived from the standard form of culture, it is surprising that it does not find as much favour amongst English growers as it does in many parts of the Continent. I am not acquainted with any grower in this country who makes a speciality of standard Gooseberries, but anyone choosing to do so may easily train them in the desired form. Encourage the formation of a clear, straight stem and stop it at the desired height.—J. C. B.

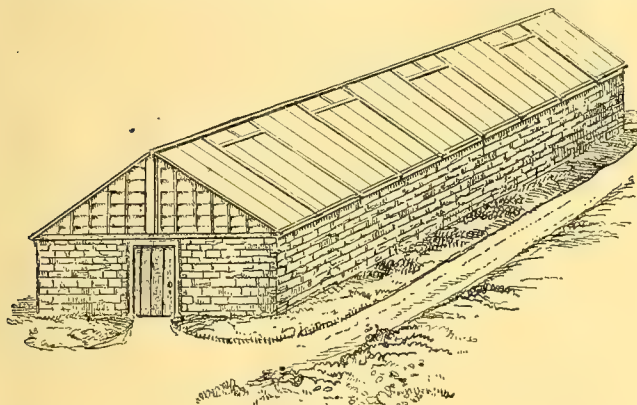
—Gooseberry trees, at least some of the kinds, are easily formed into standards, and as such I have known them to succeed very well. But I would much prefer standards formed of the best varieties of the Red and the White Currant, as I have found them much better adapted to the purpose. When the latter are grown as standards with clean stems, some 2½ ft. long, they are exceedingly ornamental as well as useful with their numerous racemes of ripe and, in the case of the red kinds, highly coloured fruit, which will, if the heads are properly thinned out and regulated, hang clear of the foliage, and have a very pretty appearance. The trees can also be readily covered with lace netting, so as to preserve the fruit from birds and wasps, &c. Thus secured, the fruit will if desired hang until very late in the season. I cannot say where such trees are to be obtained in this country.—P. G.

Starlings and Cherries.—Starlings, doubtless, do a great deal of good, as they are most determined grub-eaters, but I wonder very much what our Kentish fruit growers would say as to their non-fruit eating propensities when their Cherry orchards are concerned, for more persistent eaters of the fruit there cannot be. I have but one Bigarreau tree in my place, but the dapper little gentlemen get the best part of the fruit. A neighbour of mine has three large trees of the same kind, and when the fruits are getting ripe he employs a boy to watch them, but long before he gets there in the morning the starlings are at work and have taken their morning repast. During the day they try to dodge him, and, if he is not very sharp, manage to supply their wants throughout the day; but I do not think that there is any other fruit that they are partial to. I have another complaint against them—they will breed in the roof of my vicarage. I have taken down the plaster, which they managed to peck away, and have put cement instead, but still they manage to get it away, and are a very great nuisance, but yet I cannot have them shot, for I very much enjoy, on a summer's morning, seeing them hopping about on the lawn and picking out the various grubs which their sharp little eyes detect, and surely nothing, save the flight of a flock of dotterels, can be prettier than to see them careering about. They roost in some of the plantations near me, and the noise that they make twittering is something astonishing; altogether, they are very interesting little birds, with the exception of that one failing, their love of a good Cherry.—DELTA.

PROPAGATING.

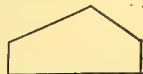
Lilium Thunbergianum.—The Lily that with me increases by far the most rapidly is *L. Thunbergianum* and its varieties, especially if the bulbs are planted rather deeply. Mine are about 6 in. below the surface in a light sandy soil, and on the portion of the flower-stem under the ground several bulbs form, which continue to increase after the stem is decayed, and by the end of the season some of the strongest are as large as Filberts, and if undisturbed for two or three years the result is a regular mass of roots, as the originals often separate, and form two or three perfect bulbs.—ALPHA.

Propagating House.—The best description of house in which to propagate plants of all kinds is a span-roofed one 8 ft. high and 10 ft. wide; it should have a pathway 2 ft. 6 in. down the centre; also a bed on one side with hot-water



Propagating House.

pipes running through it, and enclosed with a brick wall consisting of 4-in. work, covered at the top with perforated slates; on the other side there should be a platform with the piping in the centre, and as near the ground as possible. There should also be a valve in the flow pipe at the end of the bed and in the pipe at the end of the platform to regulate the top and bottom heat, points of the greatest importance. The top lights should be made to open. The best material in which to plunge pots or pans of cuttings is a mixture half and half of Cocoa-nut refuse and coarse sand. The refuse keeps the sand moist, and the latter allows the water to drain through it. The best and most useful cutting case is a portable wooden or slate one. It should be a half-span, made to fit the



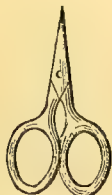
Cutting Case.



Propagating Knife.



Grafting Knife.



Propagating Scissors.

bed and rest on the brick wall. It should be covered with sheets of glass laid on so as to prevent drip, which is so detrimental to the cuttings. This may be narrower in front than at the back, and can be removed at pleasure. The annexed illustrations show the best forms of knives with which to work, either in making cuttings, budding, or grafting. The scissors are used for trimming Heaths, Epacris, or other small-leaved cuttings.

Grafting Olanthus Dampieri.—Being a difficult plant to cultivate, this *Olanthus* is but seldom seen, and yet its bright scarlet, black-bosomed flowers attract the attention of everyone. A method

by which I have been very successful in cultivating it is that of grafting it on *C. puniceus*, by which means the growth is much stronger than it otherwise would be, and thus managed it escapes mildew, to the attacks of which it is very liable. For grafting a good free stock is necessary on which the bark is still green; the scion should be taken from a young plant, as if from a flowering one it will at once commence to bloom and soon die off. The best way is to cut off the top of a young seedling plant when about 6 in. or 8 in. in height, and graft it in the ordinary wedge way, that is, cut the scion in the shape of a wedge, and having headed down the stock to about 3 in., split it and insert the graft, taking care that the bark of both stock and scion unites, and that the latter is securely tied. If put in a close case in the intermediate house a union will be effected in about a fortnight, when it must be inured to the air by degrees, and gradually hardened off until removed to an ordinary greenhouse. A soil composed of about two parts turfy loam and one of leaf mould with a little manure and a liberal mixture of sand will suit it admirably.—ALPHA.

THE LIBRARY.

FARMING IN A SMALL WAY.*

ALTHOUGH this is somewhat out of our way, we think it well to testify to its practical and complete character, and we wish that the circumstances of the country allowed of a larger number of people following the art of "Farming in a Small Way." In England the opposite condition of large farmers only too often obtains, and the result is that a variety of miscellaneous products which our own people ought to grow are left to small landowners and farmers of other countries. Some remarks the writer makes on disposing of the produce of the market garden and small farm are worth attention here.

There are few families who are not partial to vegetables; to many they are the principal sources of support. In large towns, where prices are high and everything, even to a sprig of Parsley, has to be bought, vegetables form a large item in the housekeeper's account, and expense alone, even in houses of the wealthier classes, is the reason many more are not consumed. The clerk, the shopman, or the artisan, earning from 35s. to 50s. per week, at all times considers the best kinds of vegetables as luxuries, and an item of 5s. for his weekly supply is a matter of great consideration to him, as indeed it may well be if we estimate it at an eighth of his income. Yet, after all, how much can be purchased for 5s.? If he has a family they would consume thus much in Potatoes alone, without allowing for Cabbage, Cauliflower, Onion, Carrot, Parsnip, Rhubarb, Turnip, to say nothing of Peas, Beans, and a host of other delicacies. If the matter is thus pursued by any one interested in the subject it will at once be seen that, after all, vegetables cannot be consumed half so largely as they are supposed to be or as they should be, and that they do not form that great quota in our domestic economy that they are generally supposed to do. The great and natural reason which prevents consumption is cost, for, except perhaps in the case of Potatoes, vegetables are not yet considered by the million as common necessities of life, and where the shoe pinches they are very little eaten indeed. It is true that among the very poor vegetables are sold in the byways of London in mixed lots, to enable the purchasers to prepare meals much in the same way that the French prepare their *pot au feu*, but this is only the case where meat cannot be obtained. Until the salesmen in the great markets or "middlemen" are entirely swept away, the great populations in our towns cannot obtain vegetables at anything like an approximate price to that for which they are grown, and therefore we welcome the inauguration of the co-operative societies now being formed for the purpose of bringing the grower and the public in direct contact. Let us therefore caution every vegetable grower to abstain in every possible way from dealing with middlemen, who are responsible to no one, and who return him whatever price suits their pocket or their conscience. This is the secret of their prosperity as a class, and the *statu quo* of those unfortunate producers who have so long been subject to them and their caprices.

Street's Indian and Colonial Mercantile Directory.†

—We have much pleasure in calling attention to this important work, which concerns many of our dependencies and colonies, and

* "Farming in a Small Way." By James Long, author of "Poultry for Prices and Profit," "The Goat," &c. London: Smith, Elder, & Co., 15, Waterloo Place.

† "Street's Indian and Colonial Mercantile Directory." London: G. Street & Co., 30, Cornhill, E.C., and Street Brothers, 5, Serle Street, W.C.

is, considering the difficulties of getting information at so many different points, very well compiled. It is well printed and produced; the maps are admirable, and cannot fail to be of use to those who have business relations with our colonies or with India. The work is looked upon as being quite indispensable to the City merchant.

Dewey's Fruit Plates.—Mr. Dewey sends us from Rochester, in the State of New York, some specimens of his coloured plates of new fruits. He appears to have a business of supplying nurserymen in different parts of the country with coloured plates of novelties of popular fruits, which will enable them or their travellers to sell their produce to the public. The plates in question, while not very artistically drawn, are fairly coloured, and no doubt serve their purpose. There are few fruits of interest to us among them, except the Waterloo Peach, which will, no doubt, come here in due time. He also sends us important catalogues of fruit and other trees adapted to meet the wants of different buyers, western or southern, and a couple of books by Mr. Elliott on "Landscape Gardening" and "Fruit Growing," which we may refer to at greater length.

LATE NOTES AND QUESTIONS.

Procuring Seeds of Alpine Flowers.—Where can I obtain seeds of alpine plants described in that interesting work "Alpine Flowers for English Gardens"?—A. H. [Search the catalogues of the chief retail seedsmen. We used to note a good many in the catalogue of Mr. W. Thompson, of Ipswich. Mr. Niven, of Hull, probably has a list of those sown in botanic gardens. Other botanic gardens also have lists of seeds for exchange, and some of the Continental ones may sell them, such as the Geneva Garden. Haage & Schmidt's catalogue should be examined.—ED.]

T. S.—There are no evergreen plants possessing the characteristics you mention. If it is a good selection of hardy herbaceous plants and shrubs with flowers of various colours you want, we will gladly furnish it, but as your question now stands we fail to comprehend its meaning.—ED.

Fuel for Saddle Boilers (p. 11).—Coke is sometimes used for saddle boilers with good results, but the best fuel for them is a mixture of coke and anthracite coal, two parts of the former to one of the latter.—THOS. WEAVER, Oakley Hall, Hants.

Orchard House Glass.—"S. A." (p. 77) may safely glaze the front of his orchard house with semi-transparent glass. Many in Lancashire use it both for fruit and plant houses.—J. SMITH, Waterdale.

W. Von R.—Apply to the Secretary of the Royal Horticultural Society, South Kensington.

Cypripedium Calceolus and spectabile.—Having had plants of these sent me by a friend and wishing to grow them I shall feel obliged if you will say what soil and treatment they require? and if they are perfectly hardy; would they do best in pots through the winter?—LEARNER.

Camellias and Chrysanthemums.—Will some of your correspondents kindly give me the names of two of the very best white Camellias, also two red ones, best-shaped flower and free-flowering? Also half-dozen names of the best Chrysanthemums.—ALEXANDRA.

Names of Plants.—G. D.—Apparently *Thysanacanthus rutilans* (red). The other too withered to name. They are very small morsels.—W. A. H.—*Dendrobium Pierardi*.—F. B.—*Lycaste lanipes*.—F. R. S.—*Dendrobium Pierardi*.

Names of Fruits.—C. P.—Your Apple cannot be named from a single specimen. Send us two or three fairly good examples of it, and we will do our best to name it.

Classification of Orchids.—Mr. Bentham read a paper on this subject to the Linnean Society the other evening. Robert Brown, he said, first published the principles of their classification on a solid basis, and Lindley afterwards, in his "Genera and Species of Orchids," further summarised and grouped in such a way as even to remain true till the present day. The younger Reichenbach has devoted great attention to Orchids, and especially those in cultivation, but from him we still lack a synopsis of contrasted characters adapted to the limitation of tribes and genera. The result of the later botanists' detailed examinations of all the genera proposed or established of which they could procure specimens, living or dry, checked by published descriptions and illustrations, has been their distribution into five tribes and some twenty-seven sub-tribes, as follows:—

TRIBE I.—EPIDENDREÆ.
Sub-tribe 1. *Pleurothallæ*
" 2. *Microstylæ*
" 3. *Lipariæ*
" 4. *Dendrobieæ*
" 5. *Eriacæ*
" 6. *Bletieæ*
" 7. *Cælogyneæ*
" 8. *Stenoglossæ*
" 9. *Leliæ*

TRIBE III.—NEOTTIEÆ.
Sub-tribe 1. *Vanilleæ*
" 2. *Corymbieæ*
" 3. *Spiranthæ*
" 4. *Diurideæ*
" 5. *Arethuseæ*
" 6. *Limodoreæ*

TRIBE II.—VANDEÆ.
Sub-tribe 1. *Eulophiæ*
" 2. *Cymbidiæ*
" 3. *Cyrtopodiæ*
" 4. *Stanhopeiæ*
" 5. *Maxillariæ*
" 6. *Oncidiæ*
" 7. *Sarcanthezæ*
" 8. *Notyleæ*

TRIBE IV.—OPHRYDEÆ.
Sub-tribe 1. *Serapiadeæ*
" 2. *Habenariæ*
" 3. *Dijeræ*
" 4. *Coryciæ*

TRIBE V.—CYPRIPEDEÆ.

Mr. Bentham thereafter entered into lengthened explanations of

the several tribes, sub-tribes, and more remarkable genera in the Order in his usual critical and careful manner.

Low Temperatures.—The following, sent me by my gardener in Ireland, at Belvedere House, Mullingar, may be interesting:—

Jan. 10 -	Min.	24 deg. or	8 deg. frost.	Jan. 17 -	Min.	24 deg. or	8 deg. frost.
11 -	"	20	"	18	"	18	"
12 -	"	14	"	19 -	"	10	"
13 -	"	24	"	20 -	"	12	"
14 -	"	16	"	21 -	"	6	"
15 -	"	12	"	22 -	"	19	"
16 -	"	12	"	23 -	"	20	"

The garden is sheltered, the instrument about 1 ft. from the ground, and situated on the limestone plain of the centre of Ireland, about 400 ft. above sea level. Hitherto tender shrubs have done well during winter, but now, I suppose, all the conditions of gardening must be changed. The cold, however, is undoubtedly very unusual.—BRINSLEY MARLAY, *St. Katharine's Lodge, Regent's Park.*

— The following table prepared by Mr. Symons, a great authority in matters relating to the weather, was published the other day in the *Times*:—

LIST OF ALL DAYS ON WHICH THE TEMPERATURE OF THE AIR AT CAMDEN SQUARE, LONDON, HAS FALLEN BELOW 20°.

Temperature in Shade.

Date.	9 a.m. Deg.	9 p.m. Deg.	Max. Deg.	Min. Deg.
1850, December 17	19.9	26.5	27.1	14.4
" 18	23.6	19.3	26.6	17.7
" 19	18.8	27.8	30.8	14.9
" 20	28.3	33.9	36.1	18.4
1860, December 25	12.1	28.8	32.5	6.7
" 29	13.9	32.6	32.6	12.8
1861, January 6	22.4	23.6	29.8	18.6
" 8	20.2	19.5	32.1	15.4
" 9	15.6	17.3	25.7	14.3
" 10	16.1	18.1	25.8	14.9
" 11	24.9	32.2	34.2	17.5
1862, January 19	24.3	27.4	29.2	18.1
1864, January 6	19.9	21.9	26.4	15.1
" 7	21.5	30.1	30.4	15.5
" February 10	25.2	33.3	40.0	18.9
" December 18	30.3	35.0	35.3	17.8
1865, January 29	21.9	35.3	37.6	18.0
" February 15	20.8	28.2	31.4	15.1
1867, January 3	19.4	22.2	30.0	15.7
" 4	7.2	12.8	16.9	6.7
" 5	22.0	29.1	31.0	10.2
" 14	21.3	21.5	50.3	16.5
" 15	25.5	27.8	31.5	19.1
1870, December 23	22.2	23.2	29.8	18.6
" 24	17.5	20.5	25.1	16.3
" 25	20.1	29.2	30.1	14.0
" 30	26.8	21.8	31.4	19.8
" 31	20.9	27.5	29.4	18.2
1871, January 13	27.0	37.2	37.5	19.7
1874, December 23	19.6	28.2	28.2	18.4
" 24	33.8	34.4	38.2	19.5
" 30	24.0	24.4	30.1	19.1
" 31	21.3	21.8	24.3	19.0
1876, January 12	22.0	31.8	32.4	18.9
1878, December 25	28.2	32.8	41.6	18.7
1879, January 12	20.1	32.8	33.2	19.2
" December 7	18.4	30.0	30.4	16.1
" 8	34.4	32.9	37.7	18.6
1880, January 20	22.7	26.9	32.4	19.6
" 27	22.5	26.8	30.6	19.2
1881, January 13	25.7	26.9	33.6	12.3
" 14	20.7	19.8	26.9	19.4
" 15	14.0	22.6	24.8	19.2
" 16	17.8	20.5	27.4	14.2
" 17	15.4	29.0	29.9	11.8
" 18	30.4	27.5	30.4	13.7

Hence, although no day this year has been so cold as December 25, 1860, and January 4, 1867, on each of which the temperature fell to 6.7°, yet, looking at the element of time, the recent frost surpasses all the others as much as the present snow bids fair to surpass all the metropolitan snowstorms of which we have any recollection.

— Mr. Elphinstone writes, from Shipley Hall, Derby, that the thermometer was within 4° of zero on the 16th, and that between the 16th and 22nd he had 166° of frost.

— According to a letter received on Tuesday from Iowa, U.S.A., the thermometer has fallen there to 38° below zero.

Gishurstine.—Since we noticed this (p. 34) other favourable reports have been received respecting it, and amongst others one from Mr. A. F. Barron, Royal Horticultural Society, Chiswick, who says: "I write to thank you for bringing the Gishurstine under my notice. I have tried it myself, and my foremen in the garden have tried it, and found it excellent, far superior to anything we have ever used."

Agricultural Hall.—We observe that conservatories, green-houses, garden appliances, lawn mowers, garden seats, garden hose, &c., are amongst the subjects to be shown at the exhibition of domestic labour-saving appliances to be held in this hall in March next.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

SUNKEN HOUSES FOR ORCHIDS AND OTHER PLANTS.

WITH the ever increasing dearness of fuel, and in view of the general wish shown by the possessors of gardens in this country to make reductions in the expenditure connected therewith, it seems singular that one great means of economising warmth in garden structures should be so generally overlooked. New boilers and improved systems of imparting heat come into notice in great and, to the uninitiated, in confusing abundance. Water, steam, coal, gas, &c., have each and all their advocates and defenders, and doubtless each has its advantage when applied properly to the end in view. Horticulturists will admit that the retention and utilising of warmth in houses devoted to the culture of plants should receive as much attention from those professionally interested in such matters as the most successfully carried out methods of generating heat, the first costing but little in comparison with the latter. The exceptionally severe wintery weather which has visited the whole of the British Isles recently must, in most instances, where houses had to be maintained at a certain high degree of warmth, have proved an expensive, difficult, and uncertain undertaking. And it is only fair to assume that plants have suffered in proportion to the amount of artificial heat given, and of their ability to withstand such detrimental influences.

As a means of avoiding several disadvantages incident to such houses, whose floors are on the same level as the surrounding ground, I venture to propose one kind of structure, which, on the continent of Europe, finds general adoption. The whole area which it is intended to cover with glass is excavated to the depth of $3\frac{1}{2}$ ft. to 4 ft.; and if, from the situation or nature of the ground, it is to be feared that water might find a lodgment, it is carefully drained. The walls are built of brick or stone, and are better when built hollow. The outer casing is the thickness of a brick's length, with a thinner inner wall, 6 in. distant from the outer one. Such a wall is very nearly frost-proof, and assists greatly in retaining warmth within the house. The end walls of a span-roofed house are built in the same manner, and are commonly carried up to the apex of the building, with a small opening in the angle for securing thorough ventilation in excessively hot weather. The doors are always in pairs, the inner one opening inwards, and the outer one outwards. A porch is sometimes given instead of two doors in the thickness of the wall. The steps are either wholly outside, or partly outside, with three or four steps inside the house. The roof—of stout glass, with 8-in. spaces between the sash-bars—can be either a fixed one without principals, or can be made on the sash system. If sashes are used the roof has more steadiness, and is also of greater durability; the inferior sash-bars should be of wrought iron, but the frame of the sash should be made of the best red Pine.

Plant stoves, Orchid houses, and similar structures require but a small number of ventilators; these are usually movable hinged panes, fixed in the upper portion of the roof, and work independently of each other. In houses built for the culture of plants of cooler climes extra ventilation may be obtained by making orifices, 2 ft. in length and 8 in. in width, in the clear, through the side walls, or by a row of movable panes in the lower part of the roof. The side staging, if such is

used, reaches to about the level of the earth outside the house. No guttering is used, but a shallow open channel of brick, set in cement, and resting on "beton" or concrete, runs along the side walls, ending in a sink over a conduit. The expensive structures with front lights, as put up in this country for Vine and other forcing purposes, are found in practice to be somewhat costly luxuries, not alone in construction, but in heating as well. The gardener has also the temptation offered him thereby to grow some pots of miserable French Beans, bedding plants, or the like, to the detriment of the plants for which the house was built. Thus much on the construction of a house for the cultivation of plants. Other erections, as winter gardens or conservatories, can be carried out on the same principle, but with such modifications as the height of the subjects intended to be grown in them demand. In such houses the side lights cannot be avoided, excepting in curvilinear constructions; but they should be made double and movable, so that in summer they could be removed altogether.

For many years I cultivated a large number of Orchids in underground houses, or as the Germans call them *Erd Häuser*, with good results. With the exception of the side benches of stone of about $3\frac{1}{2}$ ft. in width, there existed no other staging in them. The middle of the house consisted of a bed of peat, loam, charcoal, and a little leaf mould; this was about 2 ft. deep, and was confined by a wall of 1 ft. in height and half a brick in thickness. This was separated from the side benches by a path of $2\frac{1}{2}$ ft. in width made of sandy gravel, which was always pleasant to walk upon, and afforded a good contrast to the green of the foliage. In this centre bed, barked Oak, Hornbeam, or red Cedar branches with three or more forks each and of various heights, from $2\frac{1}{2}$ ft. to 9 ft., and 2 in. to 4 in. in diameter, were inserted at distances of $1\frac{1}{2}$ ft. to $2\frac{1}{2}$ ft. asunder. Of course, although there was no rigidity of outline, still the general slope of these stakes was from the apex of the house downwards to the sides. The stumps were charred at the lower end for about 2 ft., and then tarred twice, being at each time, while the tar was soft, thickly sprinkled with sifted woodashes. This forms an excellent waterproofing preparation. The upper ends of the forks were cut over horizontally, and a disc of hard wood, of the size of a tea saucer, nailed on each. Such an arrangement of the interior permits of pleasing groupings of the plants. The Orchids were grown in rather flat broad baskets of terra-cotta made out of ordinary flower-pot clay, and resembling rustic wood work, mossy, knotty, rough, and unglazed. These baskets were balanced on the wooden discs above mentioned, and were therefore in as free and light a position as could be desired; for the plants being slightly elevated over those immediately in front threw no shade over each other, and as the house stood north and south, each side enjoyed the sun. The ground under the Orchids was planted, according to taste, with *Isolepis*, *Reineckia*, *Adiantum*, *Cyperus*, *Philodendrons*, climbing *Begonias*, *Lycopodiums*, *Ficus repens*, *F. elastica*, *F. imperialis*, *Hoyas*, *Thunbergia Harrisii*, *Lomarias*, *Blechnums*, *Colocasias*, *Tradescantias*, *Vanilla*, and *Palms*. The climbing subjects soon seized on the rough wood of the branches, and, quickly crowning them with greenery, formed with the Orchids a charming and natural picture. Owing to the rapidity with which many things that were planted out grew, the knife had to be frequently used to check and cut away luxuriant growth. It often happened that healthy baskets of Orchids were left undisturbed for more than a year; these were allowed to become over-run by some charming creeper perhaps, not quite to the benefit of the Orchid, but the effect was good, and the damage done to the robust subjects was of no great moment.

Owing to the retentive nature of walks, beds, and to the mass of vegetation covering a great part of the ground, we could, under any conditions of weather, secure sufficient moisture in suspension without that constant wetting of surfaces so necessary in most houses. Light wooden shutters were also used as a safeguard in winter, and this practice essentially prevented the condensation of moisture on the glass. Houses for the cultivation of plants from temperate climes, especially when these are small, require regular staging and thorough drainage, but no pavement is wanted. Damp is an enemy to be feared in such houses if strict attention be not paid to the ventilation, making of fires on sunless mornings, and cleanliness. As a shading material for Orchids and warm house plants generally I can strongly recommend water reeds (not rushes) made into mats about 4 ft. wide and the length of the sashes. An ordinary labourer can easily master the art of making these mats, and could easily add to his income by so doing. It is quite a house industry in some parts I have visited.

The following is a list of Orchids, grown in the house in question, viz —

<i>Aerides Fieldingi</i>	<i>Maxillaria nervosa</i>
odorata	<i>Miltonia odorata</i>
<i>Acropera Loddigesii</i>	<i>Oncidium lividum</i>
<i>Anisopetalum lutea</i>	Lanceanum
<i>Anguloa Ruckeri</i>	sphacelatum
<i>Brassavola</i> sp.	incurvum
<i>Brassia verrucosa</i>	<i>Phaius maculatus</i>
<i>Bletia stricta</i>	albus
<i>Chysis bractescens</i>	grandiflorus
<i>Cattleya labiata</i>	<i>Peristeria Humboldtii</i>
Mossiae	<i>Pholidota imbricata</i>
<i>Celoglyne fimbriata</i>	<i>Rodriguezia Barkeri</i>
<i>Cymbidium aloifolium</i>	laxifolia
<i>Cirropetalum Thouarsi</i>	<i>Stanhopea devoniensis</i>
<i>Cypripedium insigne</i>	tigrina major superba
barbatum	insignis
venustum	oculata
Sedeni	insignis superba major
<i>Dendrobium nobile</i>	eburnea
Gibsoni	Cavendishi
transparens	insignis superba
<i>Epidendrum cochleatum</i>	venusta major
ciliare	odoratissima
cuspidatum	inodora punctata
<i>Gongora</i> sp. (two)	grandiflora
<i>Laelia anceps</i>	Martiana
Perrini	Wardi lutea
grandiflora	aurea
superbiens	<i>Sarcanthus rostratus</i>
princeps	<i>Vanda multiflora</i>
Barkeriana	teres
speciosa	<i>Zygopetalum crinitum</i>
<i>Lycaste Skinneri</i>	Mackayi
macrophylla	intermedium
<i>Maxillaria picta</i>	<i>Limnolobos rosea</i>
Baueri	<i>Dendrobium cuspidatum</i>
densa	<i>Epidendrum prismatocarpum</i>
tenuifolia	<i>Brassavola nodosa</i>
Barkeriana	<i>Dendrobium moschatum</i>

SYLVESTRIS.

On Resting Orchids.—Some doubts exist as to the extent to which this can be carried out with advantage, for I have no doubt that it is an advantage to give such plants as decided a season of rest as possible before they flower; but if carried to excess it may weaken rather than strengthen the plants for another season's growth, for if exposed to a low temperature for any length of time the roots may become useless. I am led to make these remarks as a warning to those who grow free flowering Orchids, such as the *Dendrobiums*, but have no regular Orchid houses in which to rest them for a time before they are introduced again into heat for flowering; consequently in many cases they are put into cool Vineries, and in a period like that through which we have just passed, with the outside thermometer ranging from 15° to 20° below the freezing point, it is more than likely that these Orchids at rest will be in a temperature below 40°, and although they may not

apparently be much the worse for it, I question if they are benefited by it; I do not think that they flower any more freely, as I have had them loaded with blossoms when kept in the growing house the year round by merely withholding water and keeping the temperature as low as possible during their resting period. Under this treatment they started into growth stronger than when the drying off and cooling down system was practised.—J. G., *Linton*.

NOTES ON ORCHIDS IN FLOWER.

Laelia albida gemma.—This and the following are among the more noteworthy of the numerous varieties of Orchids now in flower in Mr. Bull's nursery at Chelsea. It is by far the most beautiful form of *L. albida* we have yet seen. It more resembles the variety *bella* than it does the type, but is superior to it, as the flowers are larger, the sepals broader and of firmer texture, and the lip together with the tips of the sepals, tinted with a deep rosy-purple colour, forming a lovely contrast with the waxy whiteness of the other parts. It is a strong grower, and we hope to see it soon distributed in other collections.

Ansellia africana superba.—Some time ago we had occasion to notice a fine form of this African Orchid in the Kew collection under the name of *nilotica*, which is, we consider, superior both as regards size and markings of the flower to that of the type. The variety under notice which Mr. Bull has now in flower is even better than *nilotica* as far as concerns showiness, the rich chocolate brown of the flowers being particularly pronounced, while the sepals are broader and the tip longer and coloured with a richer and brighter yellow, thereby justifying the varietal name applied to it.

Cypripedium purpuratum.—This is the true species, a native of Hong Kong, to which the name was originally given, though a mere form of the common *C. barbatum* is substituted for it. The flower of this true form, however, is very handsome, and quite distinct from the other both as regards shade of colour and the form of the flower. The colour is a rich purplish-brown, except the upper sepal, which is nearly white, and stands erect with reflexed edges similar to that of the flower of the new *C. Spicerianum* so much admired. The size of the flower is about the same as that of an average form of *C. barbatum*.

Varieties of *Cattleya Trianae*.—These, as is well known, include many that are extremely beautiful, and amongst the finest which we lately saw in this collection were *vesta*, with large flowers of snowy whiteness with the exception of a delicate flush of pink on the broad shell-like lip; *marginata*, sepals suffused with rosy purple, lip brilliant rich crimson, beautifully crisped, and with a conspicuous white margin; *magnifica*, sepals flesh coloured and large and rather flat lip of a bright rosy crimson colour; *alba* with spotless white flowers, one of the most chastely beautiful of all.

Masdevallia ignea.—We had no idea of the remarkable floriferousness of this little gem until we saw the profusion of flowers borne by some score of plants of it in this nursery. Even during dull foggy weather when we saw them there was a quantity of flowers expanded, and on one plant in a small 6-in. pot we counted twenty flowers. Their exquisite rich crimson tint, striped and shaded with a lighter hue, renders this *Masdevallia* a singularly striking one even among its compeers, and it is one of those that cannot fail to be useful for supplying cut blooms for bouquets, &c., for which the flowers are admirably suited.

Winter-flowering *Odontoglossums*.—In one of the most wintry days we have had this year the *Odontoglossum* house in this establishment was at its best—quite a floral sight in itself. The principal kinds in flower were *Alexandrae*, of which there were some remarkably fine forms, with large flowers on long, arching spikes; *Uro-Skinneri* was also represented by fine varieties, with broad, deep, rosy-lipped flowers; *odoratum*, and an extremely fine variety of it named *pictum*, larger and more conspicuously blotched, bore broad and dense branching spikes; associated with these were also *blandum*, quite a little gem, in the way of *navium*, but much more rare; *tripudians* and its near relative *triumphans*, both very fine, particularly the variety of the latter called *xanthoglossum*, *maculatum* and *cordatum*, *pulchellum* and its finer variety *majus*; *cariniferum*, the rare *Chestertoni*, *Rossi* in several varieties, *gloriosum*, *bictonense*, *baphicanthum*, numerous forms of *cirrhosum*, one of which represented by far the prettiest form we have yet seen, inasmuch as the flowers were larger, more heavily spotted, and the base of the sepals clouded with a beautiful carmine tint.

Phalænopsis at Chelsea.—Notwithstanding the late dull weather, so unfavourable to the flowering of Orchids in London, there is a splendid display of *P. Schilleriana* in flower in Messrs. Veitch & Sons' nursery, one house being entirely filled with strong flowering plants, the remaining portion of a large importation. In such a large

number it is very interesting to observe the great diversity there exists among them with regard to the colour and size of the blossoms as well as the foliage, some having flowers of a deep tint and leaves scarcely marked; others with pale flowers and richly barred foliage, while every conceivable gradation between these extremes is apparent. The most marked forms are *P. casta* and *P. leucorrhoda*, the latter with the flowers of *Schilleriana* and foliage similar to *amabilis*.

Dendrobium splendidissimum.—In the same nursery, this is one of the most beautiful orchids in flower just now. It is a hybrid raised by Mr. Seden between *D. heterocarpum* and *D. macrophyllum* Huttoni. The flowers of the progeny are quite devoid of the tawny hue which characterises those of *D. heterocarpum* though to a great extent they partake of their form and size. The sepals are white faintly tinged at the tips with rosy-purple, while the lip has a large deep blotch of the richest maroon, edged with pure white. This lovely Orchid cannot fail to become popular in course of time.

Ada aurantiaca.—So beautiful an Orchid should not be omitted from any collection on account of its distinct and unusual colour—a bright orange. The blossoms are produced in long graceful racemes, and are particularly useful for cutting purposes, lasting long in beauty in a cut state. It is grown in the Royal Exotic Nursery, Chelsea, in a cool house, with *Odontoglossums*, a specimen of it in flower which we saw there the other had produced about a dozen spikes of bloom, just overtopping the deep green foliage.

W. G.

Masdevallia civilis.—Having received about the end of last year a small bit of this *Masdevallia*, consisting of six leaves, I potted it in a 5-in. pot, in a compost of equal parts peat and sphagnum, with the addition of charcoal and oyster shells, all well mixed together. On looking how the plant was getting on, I found another leaf coming up. Therefore, what treatment should I give the plant? I may add that it was grown in our house, where the window was almost always kept open during the last severe weather, with no evil results, excepting that one of the leaves has become a little yellow in colour; the others are all quite green.—J. H., *Aberdeen*.

Roses from Cuttings in Winter.—I am aware of several people who ordered Roses on their own roots, but had those on the Manetti, Brier, or other stock sent instead. Mr. Fish's article on this subject is therefore of very great importance, not merely to the experimenting amateur, but to nurserymen, who seem in some instances to have such a stock limited, probably owing to the difficulties of production, which has been much elucidated by that gentleman's notes. In reference to the callusing of cuttings, *vide* p. 124, as I have a large number, every one of which has apparently succeeded, I should like to ask would Mr. Fish recommend their removal from a south border against a wall to a pit or frame, with bottom heat, for rooting purposes? or, as they seem healthy, to remain as at present?—W. J. M., *Clonmel*.

Uses of Sawdust.—Two years ago I drew attention in THE GARDEN to the value of sawdust manure for gardening purposes, and was then met by several correspondents who strongly objected to its use for many reasons. The subject is again attracting notice in another gardening periodical; and it is now evident that sawdust manure is coming largely into use, and that the disadvantages which were so freely stated are not found to obtain in practice. Throughout Lancashire and Cheshire this material is used by florists and market gardeners, to the exclusion of the ordinary straw manures; and for almost every purpose it is found more suitable. It is collected when gardening operations are slack, and placed in heaps until the heating properties have gone out of it; after that it is used exactly as other manure. For heavy soils it is found especially suitable, having the additional recommendation of lightening the soil, as if bog or peat had been used. I have employed sawdust manure for mulching all the flower beds during the last three winters, and have found it very suitable for this purpose. It is an effectual protection against frost, the sawdust being a capital non-conductor of heat; and it thus preserves any seedlings there may be, as well as keeps the roots of the permanent plants warm. It is very rich in ammonia, and during the rains of winter this is carried down into the soil. When spring returns it can either be forked carefully in, or removed by the hand, so as not to damage any tender growths which it may have covered. By that time it has parted with most of its manurial contents, and may be again placed in the waste heap, but it does no harm whatever if left in the borders, especially if the soil be heavy. All our tender rockery plants are carefully covered with sawdust manure in November, and it is allowed to remain until the end of February, when it is gathered off by hand. The florists in this neighbourhood use it largely also for greenhouse purposes, and the market gardeners say they can get finer crops of Celery with it

than with any other manure. Lastly, it is cheap and clean—two very great recommendations.—BROCKHURST, *Didsbury*.

GARDEN THOUGHTS.

Horticulture is not only the happiest of all our recreations, "the greatest refreshment to the spirit of man," it is not only the most accessible in some phase or other of all our enjoyments, for it is given to all classes, rich and poor, to the window plantsman as well as to the owner of a crystal palace; but it is, of all our delights, that which retains the longest its manifold power to please. Age cannot wither it, nor custom stale its infinite variety. When there is no longer the physical activity for sports and games, not even for that beneficial lawn tennis, which rouses the energies and checks the rotundities of our middle age, when the voice of the singer, and the touch of the musician, and the keen sight of the painter fail; then the love of a garden lives on in the human heart, and some of its easier employments may be done by the feeble hand. Just now, not having reached the final period of fruition, I am thinking specially of the diversities which add so much to the charm of horticulture

The fishmongers tell you that cod-fish has its finest flavour when there has been a frost, and merit is educed by misfortune. All men are much alike in their loose summer suits, but the drenching thunder-storm, which makes the garments cling, displays the nobler form. You must catch the toad, ugly and venomous, ere you can admire the jewel in its head; so Horticulture when her surroundings are dreariest wears ever a winsome smile. Frost and snow have done their worst. My thermometer, or rather psychrometer, has been down to zero. Flora of the garden sleeps under her white counterpane, and all her jewels are wrapped up in cotton wool; but Flora of the greenhouse and Flora of the stove are jubilant in beauty. I spoke of these last week—of their glowing garlands; but a gardener's happiness is prospective as well as present, and now his anticipations are multiplied, not only by the baby buds of his Gloxinias, and the larger buds on his first batch of Roses; not only by the colour just showing on his Hyacinths; not only by the living plants under glass, but by those silent, yet most suggestive, indications of spring—the catalogues, illustrated annuals, manuals, guides, and Vade-mecums which he rejoices to see upon his library table, and rejoices also to read, because he knows that, though the incredulous may smile at those gaudy giants, may think that "the canvas glows beyond e'en Nature warm," may compare the Cinerarias to catherine wheels, the Gloxinias to church bells, and the Calceolarias to carpet bags, he knows who has made experiment that the realities are in most cases far more beautiful than their portraits. They may not have that rule and compass look which the artists give us, I suppose, to gratify a moribund class of florists, who like everything drawn to scale, but they will have for that very reason, a truer symmetry and grace. They may not have the exact colouring of the picture, but they will have those lovely tints which he who did his best to copy will tell you he could not give.

Nor have I found in purchasing seeds from our leading purveyors, "all honourable men," that exaggeration in the size of flower, fruit, or vegetable which startles us in exceptional cases when we see Beans which must have come from Jack's celebrated stalk, Peas like cricket balls, with pods like the cricketer's travelling case, Asparagus like pillar-posts, Melons like young balloons, Onions and Tomatoes like globes of lamps, Cucumbers like the pipes of an organ, and Potatoes exhumed in such abundance that there is scarcely room for

the feet of the exhumers, and resembling in their obesity the prize pigs at a show.

And I was verifying this latter similitude by re-adjusting the eye of a colossal Potato, which was afflicted by a strong cast, and had wandered from the ordinary seat of vision, by adding feet and a sweet little curly tail, when the thought occurred to me, how many of our plants, &c., had been named from their resemblance to animals, or from some other association with them, and I set myself to work to make, from my memory and my books, a list, or rather a contribution, which I hope may be amplified by some who read it, towards—

A List of Trees, Plants, Ferns, &c., which have the names of Beasts, Birds, and Insects.

Adder's-tongue (*Ophioglossum*)
 Bat-flower (*Nycterisium*)
 Bear's-ear (*Auricula*)
 Bear's-foot (*Helleborus foetidus*)
 Bee Larkspur (*Delphinium*)
 Bee Orchis (*Orchis*)
 Bee-plant (*Melissa*)
 Bird's-eye (*Primula farinosa*)
 Bird's-foot (*Ornithopus*)
 Bird's-nest (*Asplenium Nidus*)
 Bird's-tongue (*Ornithoglossum*)
 Bug-plant (*Coreopsis*)
 Butterfly-plant (*Oncidium Papilio* and *Phalenopsis*)
 Calf's-snout (*Antirrhinum*)
 Canary-bird-flower (*Tropaeolum aduncum*)
 Cassowary (*Casuarina*)
 Cat's-foot (*Gnaphalium*)
 Cat's-tail (*Typha*)
 Cock's-comb (*Celosia*)
 Cock's-foot Grass (*Dactylis*)
 Cock's-head (*Onobrychis*)
 Cock's-spur (*Crataegus Crus-galli*)
 Colt's-foot (*Lussilago*)
 Cowslip (*Primula veris*)
 Crane's-bill (*Geraanium*)
 Crow's-foot (*Ranunculus*)
 Cuckoo-flower (*Lychnis* and *Cardamine*)
 Dog Orchis (*Cynorchis*)
 Dog's-tooth Violet (*Erythronium Dens-canis*)
 Dolphin (*Delphinium*)
 Dove Orchid (*Peristeria elata*)
 Dragon's-head (*Dracocephalum*)
 Duck's-foot (*Podophyllum*)
 Duck-weed (*Lemna*)
 Eagle-flower (*Aquilegia*)
 Elephant's-foot (*Elephantopus*)
 Elephant's-head (*Rhinanthus*)
 Flea-wort (*Plantago Psyllium*)
 Fly Orchis (*Ophrys muscifera*)
 Foxbane (*Aconitum Vulpura*)
 Foxglove (*Digitalis*)
 Frog Orchis (*Gymnadenia viridis*)
 Frog-plant (*Phrynum* and *Ranunculus*)
 Goat's-beard (*Spiraea Aruncus*)
 Goat's-foot (*Oxalis caprina*)
 Goat's-horn (*Astragalus*)
 Goose-foot (*Chenopodium*)
 Hare's-ear (*Bupleurum*)
 Hare's-foot Fern (*Davallia canariensis*)
 Hare-tail Grass (*Lagurus*)
 Hare-plant (*Lagoecia*)
 Hare-tail Rush (*Eriophorum*)
 Hawk-weed (*Hieracium*)
 Hedgehog-plant (*Echinops*)
 Hedgehog Grass (*Echinocloa*)
 Hedgehog Holly (*Ilex*)
 Hen and Chickens (*Bellis prolifera*)

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Hog Bean (*Hyocymus*)
 Horse Chestnut (*Esculus*)
 Horse Fennel (*Hippomarathrum*)
 Horse-plant (*Hippia*)
 Horse-radish (*Cochlearia Armoracia*)
 Horse-shoe (*Hippocrepis*)
 Horse-tail (*Equisetum*)
 Horse Thistle (*Cirsium*)
 Horse-weed (*Collinsia*)
 Hound's-tongue (*Cynoglossum*)
 Hyena-plant (*Hyenanche*)
 Lamb's Lettuce (*Valerianella*)
 Leopard's-bane (*Doronicum*)
 Leopard-flower (*Parlathus*)
 Lion's-ear (*Leonotis*)
 Lion's-foot (*Leontopodium*)
 Lion's-mouth (*Aporum Leonis*)
 Lizard's-tail (*Saururus*)
 Lizard's-tongue (*Sauroglossum*)
 Louse-plant (*Pedicularis*)
 Mare's-tail (*Hippuris*)
 Monkey-flower (*Mimulus*)
 Monkey Tree (*Cocos*)
 Mouse-ear (*Hieracium Pilosella*)
 Mouse-tail (*Myosurus*)
 Mule Fern (*Hemionitis*)
 Ox-eye (*Buphthalmum*)
 Ox-lip (*Primula elatior*)
 Ox-plant (*Orobus*)
 Ox-tongue (*Picris*)
 Partridge plant (*Perdicium*)
 Pheasant's-eye (*Adonis autumnalis*)
 Pig's-snout (*Sisyrinchium*)
 Serpent's-tongue (*Ophioglossum*)
 Serpent Cucumber (*Trichosanthes*)
 Snail-flower (*Phaseolus Caracalla*)
 Snake's-beard (*Ophiopogon*)
 Snake Maple (*Acer*)
 Snake-wood (*Cecropia*)
 Sparrow-flower (*Passerina*)
 Spider-wort (*Tradescantia*)
 Spider Sedum (*Sedum arachnoides*)
 Squirrel Grass (*Hordeum murinum*)
 Stag's-horn Fern (*Platyceum*)
 Stag's-horn Sumach (*Rhus*)
 Stork-flower (*Pelargonium*)
 Swallow-flower (*Chelidonium*)
 Swan-neck (*Cynoches*)
 Tick plant (*Croton*)
 Tiger-flower (*Tigridia*)
 Tortoise-flower (*Testudinaria* and *Chelone*)
 Viper-plant (*Echites*)
 Weasel-mouth (*Galeopsis*)
 Wolf's-bane (*Aconitum lupulinum*)
 Wolf's-foot (*Lycopodium*)
 Wolf's-milk (*Lycogala*)
 Wolf-plant (*Lupinus*)
 Worm-plant (*Helminthia*)
 Zebra-plant (*Calathea zebrina*)

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My catalogue has occupied much more of my time than I anticipated, but this I do not regret. Though it is preliminary and incomplete, it takes a comprehensive range through the animal world, from the elephant's head to the mouse's tail, from the eagle to the sparrow, from the serpent to the worm, and from the tiger to the tick. And what an excitement of wonder would be felt by the proprietor of that happy family who frequents the neighbourhood of the metropolitan railway stations were he to know that, once again in a garden, the wolf and the lamb, the fox and the goose, the eagle and the dove, the hare and the hound, the spider and the fly are met together in unity. But I venture to think that my compilation has a real interest for many a gardener,

and a rational claim upon his consideration, because if he will be at the trouble of ascertaining the origin and derivation of these names, he will make a considerable addition, as I did, to his information concerning plants. Such an investigation of these resemblances which exist in the animal and vegetable world will bring to him who makes it for the first time a new insight into the structure and anatomy of root, and leaf, and flower, a new delight and admiration. It is not necessary that he should possess all or any of the plants in question, nor is he expected to verify the similitudes by personal interviews with the bear or the bug, the elephant or the eagle, the viper or the weasel, the lion or the louse, but let him get all the information which he may from Nature, from the garden and the field, and seek the rest from books.

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And do not these simple names revive in many of our hearts a wish, which is only dormant because its realisation seems so distant, that we might have plain English titles, descriptive and suggestive, for all our shrubs and flowers? While I entirely agree with Shakespeare's statement that a Rose if called by any other name would still retain its agreeable odour, I cannot approve the spirit of indifference with which he asks, "What's in a name?" I should like to know what he would think and say, what sort of expression there would be on that beautiful face of his if he lived in these days, was enraptured by some of our floral novelties, and, wishing to immortalise their names in song, was told that they were known as *Aquilegia californica hybrida*, *Cyclamen persicum giganteum magnificum*, *Dracocephalum Ruyschiana* var. *japonicum*, *Petunia hybrida nana compacta multiflora*, *Phlox Drummondii nana compacta cinnabarina*, *Pyrethrum aureum selaginoides*, and *Xeranthemum annuum superbissimum*!

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Of course we must keep our Latin titles and botanical terms, so that gardeners may interchange their sympathies and experiences all the world over in a common language, just as we ecclesiastics hold communion with the rest of Christendom *multae terricolis lingue calicis, et floricolis, una*, but we want also some simple sensible appellation, not only for the laity for workers, for common use, but for us who know something of Latin, but infinitely prefer our native tongue. Mrs. J. Francis Foster sends me a charming little book on "The Art of Gardening," to which I hope to refer hereafter, and writes in a letter which accompanies her gift, "I am much struck with what you say concerning the name of the *Helleborus niger*; will you not among your "Garden Thoughts" give some suggestions for the future naming of plants? The interest is almost stolen from some of them by the cumbrous names with which they are weighted; *Encephalartos Ghellinckii*, for instance, is described in *THE GARDEN* for to-day (January 15, 1881), and who could suppose that any part of such a plant might be spoken of as "long, slender, elegant?" Might not a flower's name occasionally be chosen which would remind us of historical interests attached to the plant which it designated? It has occurred to me that in this way *Aster Amellus* might be called "Virgil's Daisy." This would add to the pleasure which we take in the flower, for it would remind us how great a man noted its beauty long ago, and how charmingly he wrote of its growth and of its uses. The subject deserves a royal commission, but as it is not likely to have one, such suggestions as those which I have just quoted, the thoughts and proposals of practical gardeners, would be very interesting, and might lay the foundation of that new structure which so many of us desire to see.

S. R. H.

Cauntton Manor, Newark.

NOTES AND READINGS.

Two or three hard winters in succession will make sad havoc in our Rose plantations. The losses of last winter have not yet been repaired, and they were great, amounting in many instances to nearly the entire collections, particularly in private gardens; and now we have another lengthened frost of unusual severity that is likely to complete the destruction where any are left. We are sanguine that this destruction might be greatly mitigated, if not altogether prevented, by mulching our Rose beds thickly early in the autumn. During severe frosts like the present the plants are frozen, both root and top, and could scarcely be in a worse plight if their roots were exposed on the surface of the ground. Consequently their vitality is completely suspended, and the cold kills them in a short time. But keep the soil from freezing about the roots with a thick surface covering of any loose vegetable refuse of some kind, and even newly-planted Roses will endure the hardest and most long-continued frosts. In a garden last winter where a great number of established Roses were either killed or much injured, a collection that had only been put into the ground the November previous, with a few exceptions escaped injury, owing to their being heavily mulched with litter, which kept the soil mellow and warm about their roots.

By the way, while on this topic, I see a writer hazards an assertion on the subject of injury to Roses by frost in a contemporary, which will surprise experienced Rose growers a little. "As an illustration," he says, "of the greater injury inflicted by cold in rapid motion than even colder air at rest, it may be stated that yesterday with its 7° of frost has punished Roses more severely than the 25° of the preceding day." Now the injury done to Roses by frost can never be actually determined till some time afterwards. Last season Rose growers did not attempt to compute their losses till spring was well advanced, because they couldn't. The observations of those, therefore, who pretend to measure the damage done by 7° of frost not many hours afterwards, and when the thermometer had been down nearly to zero for the day immediately preceding, must be accepted with doubt until they can at least explain their assertions on some tangible grounds. Mr. Buchan and some others have perhaps observed the effects of frost under different conditions as accurately as anybody, but they have not calculated anything so nicely as this.

The problem presented by the Maréchal Niel Rose, which grows with a rapidity unknown in any other Rose, and dies early and unaccountably, is one worthy of investigation. Correspondents are provokingly vague and indefinite on a very simple question. Maréchal Niel Roses under glass, where they escape hard winters, should live long. Has anybody a plant ten, twelve, or fifteen years of age? and in what state of health is it? These are the questions which lovers of this grand Rose are asking, and they are many. Mr. Fish has tried various stocks for it, and is now in favour of the Dog Rose, but he does not say the Rose is long-lived on it. That the Maréchal will grow amazingly on nearly all the stocks on which it has been tried has been proved long enough. Plenty of marvellous examples have been furnished, but how long will it live on any of them? A year or two is nothing, for in that period the bud has barely time to get more than firmly established upon the stock. Examples of plants being "converted in a diseased mass," owing to the young wood "bursting through the cambium," we have not seen nor heard of. This rending of the bark is not at all a phenomenal occurrence, for it can be observed frequently in trees and plants that are growing rapidly and laying on timber. We submit that the longevity of the Maréchal Niel Rose is altogether a question of a suitable stock, if one can be found for it of a reciprocal habit—that is, a stock that will expand with the growth of the plant. The Rose is an unparalleled grower, and when it is grafted on another stock the same thing happens with it as happens with Peaches and Pears, &c., when they are worked on stocks that are of a less free habit than the scion. Swelling and canker take place at the union between the two, till, as Lindley long ago pointed out, free circulation is arrested, and the top becomes weak or dies outright. This argument does not, however, hold good when the Rose is on its own roots; hence it should have a fair trial in that way.

That must be "another" Cucumber of an "Amused Observer."

Ours was a *bonâ fide* production, and the illustration was said to be from a photograph. The "perspective" is "all right," and resting on the kerbstone near to the man's hand is a Cucumber very much longer than he is. The man's shadow is thrown straight across the path and rests on the same line of the brick kerbstone as the Cucumber. Our Cucumber is not only a long one, but it is also an enormously prolific one; the roof and the border are both equally laden with fruit, and in one place can be counted about a dozen magnificent fruit with their ends close together to indicate, we presume, that they are all produced from one bud.

"That our climate must have changed since the days when the monks possessed Vineyards on many a hillside is, I think, certain," says a correspondent, but we doubt the truth of the assertion. People sow and reap their crops, and periodically roast oxen on the Thames just as they used to do; but the monks do not grow Grapes on the hillsides because glass is cheaper and because they are less thrifty now than formerly, just as they do not now thrash their own corn, bake their own bread, kill their own butcher-meat, and do a great many other things they have given up for various reasons. It will never do to throw the blame on the climate in the face of what has been actually accomplished. It is a very old excuse, "the climate." When John Rose wrote his "Epistle Dedicatory" to his "English Vineyard Vindicated" more than 200 years ago, he persuaded himself that "it was not altogether from defect of the climate, at least not in all places, that our English wines as hitherto they had been ordered" were, not in good repute. Very sensibly, too, does John Rose write when he says, "Nor are gentlemen to be therefore deterred because this late age has neglected the planting of Vineyards, that therefore it is to no purpose now to begin, since the discouragement has only proceeded from their mis-information on this material article of the choice of soil and situation, &c., &c." It would appear from this that the "climate" has been an obstacle for a very considerable period, and one that has been magnified not a little as time passed on till it has now become an almost insuperable one, and only to be removed by energetic experiment and trial now.

There is nothing particularly wrong with the laying-out of some of our formal and terraced gardens. The landscape gardener has done his best with the style to which he is tied, and shown both capacity and judgment in dealing with the materials at his disposal; but now and then we come upon telling examples of the ginger-bread maker and pastry-cook methods of dealing with the formal style, the great fault of which is that it lends itself readily to the endeavours of such practitioners. An engraving in one of your contemporaries lately gives force to these remarks. One does not gather whether it has been published as a warning, or as an example to be followed, for the author of the notes accompanying the illustration carefully abstains from committing himself to an opinion on the subject, and leaves the reader to find out his motives. The picture shows a mansion standing at the top of a commanding slope, which has been frittered away in a series of paltry Grass terraces—five or six in number—and arranged in unbroken succession, in the same way as navy contractors buttress reservoir embankments, only the latter generally have some regard for the "look of the thing" as well, and vary their slopes and flats as far as practicable, in order to avoid a too severe uniformity. The designer has had a fine opportunity, but has missed it sadly in meddling at all with a free, natural slope, which a few touches would have rendered beautiful. Evidently the depressing monotony of the arrangement has struck someone afterwards, for a row of ungainly Irish Yews has been stuck in the middle of every alternate terrace, in order to relieve the aspect, but with rather aggravating results, if anything. Two or three men in a few days, with spades to level the ground into a uniform slope, would greatly improve the aspect of the place in the meantime.

PEREGRINE.

Waterproof Boots.—There has been a great deal written lately on this subject, but few seem to know that there is one simple article which will render any decently-made boot thoroughly impervious. It is nothing more nor less than cold-drawn castor oil, "pure and simple." It is best applied before a moderate fire. The boots to be dressed should be quite clean and dry, and especial care should be given to the welt and the tongues, and their stitching to the upper leathers. I generally begin by pouring the oil from the bottle all round the welt, so that the angle between the sole and

upper leather is quite filled with oil, and then proceed all over the boot, including the edges of the soles, rubbing it in with the hand. When one is done, have a turn at the other, and so alternately till you have got in about a tablespoonful and a half to each boot. The tongues, being thinner leather, should be quite saturated. Subsequent dressings will not require so much oil. I have never found anything to touch this as a waterproof dressing; the gelatinous oil seems to effectually stop every pore in the leather. There is another advantage for those who are natty in such matters: the boots will soon take a good (common blacking) polish; so much so that a man may, if he likes, waterproof his ordinary walking boots for bad weather without spoiling their appearance. With a common walking boot, of ordinary thickness, apply the oil all over sole. I wear boots so treated, shooting, over thick woollen socks, for from eight to twelve hours a day or more, without feeling the slightest inconvenience in any way; but they have the chilly feel inseparable from all boots that are oiled in any way.—Correspondent *Field*.

THE COST OF FLOWER GARDENING.

SOME time ago we pointed out the weakness of Mr. David Thomson's argument against the expense of hardy flowers, owing to the cost of the stakes, and instanced many important families in which stakes were not required, while at best the objection was only one that applied to all taller and more vigorous plants of any class. The resorts to which he or his aids in his magazine are driven to defend their position may be judged by the following extract referring to our remarks:—

Any species or varieties, however beautiful their flowers may be, if they require support in the way of stakes, are reluctantly admitted into the "hardy brigade," and, as a consequence, the greater number of the most beautiful, showy, and useful of our hardy herbaceous plants are not admissible in the ideal flower garden of those who advocate the abandonment of the bedding-out system. Fancy the result of excluding from the herbaceous garden the stately Delphiniums, the beautiful Aster-like flowered Pyrethrums, several species of the Lily family, Carnations, all the taller kinds of Phloxes, and a host of representative members of other families that, in this windy island of ours, it is absolutely necessary to stake, in some way or other, if we would see them in all their beauty, and not as bedraggled, bespattered, betattered objects—highly illustrative of their fitness for admission in the ragged brigade!

The reasoning power and fairness possessed by anyone who invents a false and ridiculous statement for the sake of controverting it in his own fashion, are not of a high order. Such words are invented for us who have always fought for a place for every beautiful thing (when there was nought but sneers, as well as now when there is healthy change and ample promise). But if fair rejoinder will not help them, inventions of the above type will not stop improvement, and the writer will, no doubt, cheerfully acquiesce in the progress as soon as his surprise and indignation are past. This is already clear from expressions such as "each class of plants has its place"—the very thing we have always contended for, it being too notorious that many places, and very large ones, had only one phase of garden decoration, and that crude and limited in variety and geometrical. It is also untrue that we advocated the total abolition of bedding, inasmuch as we have always stated that within due limits, and tastefully done, it has its place and its charms as well as other plans, but we have never spared the gross blunder of trusting to it only for our main garden decoration.

— I have several times thought of writing to suggest your doing just what you propose to do. In the notice under the head of hardy flowers in last week's GARDEN (p. 121), while the question of the cost of the hardy perennial system of gardening *versus* that of bedding out was under discussion in your columns, I felt that really the answer depended, more than anything else, on the success attending the culture of the former. I speak from experience. Some five years ago I got up a fair stock of hardy flowers at no inconsiderable cost, with very little knowledge of them myself, and a gardener, who though competent in other branches of his calling, knew still less. They were consequently planted with little or no discrimination. The result was what might have been foreseen. I have learnt better as I have gone on, but my schooling has been costly.

And I must say in self-defence that the ordinary instructions afforded by book teaching of these matters have not given much effectual help. We get from them for the most part a general idea whether such and such a flower likes a dry or a moist situation, a stiff or a light soil; but something much more than this is wanted. Nor does it even

avail to know the habitats of the several plants. In very many cases—I have in my mind Alpines proper—the conditions furnished by these cannot be supplied in our garden here, and equivalents have to be contrived, which are not seldom very different from what would have been supposed beforehand. Thus Alpines which flourish in the full blaze of the sun in their native haunts, as, e.g., the Edelweiss, because we cannot give them that covering of snow which keeps them in health for seven or eight months of the year, must be grown in the shade, if they are to be permanent, to avoid the premature stimulus of our changeable winters. And thus it comes to pass that every plant which it is at all difficult to acclimatise has what we may call its own "dodge," its own peculiar manner of treatment, often apparently unreasonable, and learnt by simple experience or experiment. Thus *Woodsia alpina* will do very well out of doors if covered over on dry days, and exposed at night or on wet days, but scarcely, I think, otherwise.

Therefore what we want to encourage and in what to beginners is somewhat uphill work, is a culture of hardy flowers based on personal experience. I have found such and such a plan succeed after trying all sorts of other ways in vain, and though I cannot explain entirely on what principle it is so successful, *experto crede*—believe one who has tried.

If you can see your way to full and particular statements of successful culture of hardy plants, getting it may be from correspondents' cases of individual success well authenticated, and with all the facts of the case strongly apprehended, you will confer a lasting boon on those of us who have been sitting at your feet, or rather treading in your steps, both at home and abroad, and do more than anything else, I think, is likely to do to promote a cause which is more than a matter of passing taste.

CANONICUS.

DEMAND FOR CUT FLOWERS IN NEW YORK.

THE winter season brings a sharp demand for cut flowers in our great metropolis, and rarely has the demand been so great or the supply so inadequate as now. The recent holiday season has quite exhausted the stock in many of the leading greenhouses, especially of such choice flowers as are most in favour. New Year's Day brings this demand to its greatest height. The various devices ordered by fashionable people for their receptions on that day are elaborate and costly, and require a profusion of choice varieties, and this year the demand for this purpose was greater than ever. A favourite design is arranged in the shape of a plaque and supported on a suitable easel. This is gracefully filled with Roses, Camellias, and other choice flowers, and bordered with Filmy Ferns. Beneath a Smilax wreath a miniature figure of Cupid is suspended, wearing a crimson sash bearing the words "A Happy New Year." It is also customary at this season for gentlemen to send bouquets with their cards to lady friends. Lately, growing pot plants have also been used to a large extent for decorative purposes; and, owing to the present severe weather, many of these, as well as cut flowers, were injured or lost during delivery or removal. All this has forced prices to very high figures, especially for favourite flowers, and in some cases exorbitant rates have been obtained. Roses have, as usual, brought the highest prices. The favourite Genl. Jacqueminot sold readily at 2 dols. each; Marechal Niel, Cornelia Cook, La France, Catherine Mermet, Malmaison, and Perle des Jardins being in good demand at prices ranging from 25 cents to 1 dol. 50 each, according to kind and quality. The scarcity of Roses has brought the Camellia more into favour again; and they now sell at 25 dol. per hundred. Carnations are much sought for, and sell at 3 dols. and 4 dols. per hundred readily. A few species of Orchids have also been in market at good prices. Violets have been in good demand, selling at 4 dols. per hundred. Their delicate fragrance and modest beauty keep them in favour. Lilies of the Valley are as eagerly sought as ever, and the supply has been short and prices high. The Smilax Vine has also been in much favour, and seems yet to be without a rival for the purposes to which it is so charmingly adapted. Poinsettia leaves and Begonia sprays have also entered into many handsome designs with most happy effect. Hand bouquets are made larger than formerly, and the prices are correspondingly higher. Ten or fifteen dollars will buy only an average specimen; while from 50 dols. to 60 dols. is demanded for a choice large one. The present demand for flowers here is declared to be unprecedented, and it is claimed by intelligent travellers that New York is now the best flower market in the world, and offers the most tasteful and pretty arrangements. A leading florist here claims an annual profit on his business amounting to 15,000 dols. From this statement it is safe to infer that his sales must be very heavy, as growing flowers is not usually a business attended with enormous profits, especially in this country where the demand is so fluctuating, and the climate so fickle and uncertain.

H. HENDRICKS.

Kingston, N. Y.

COUNTRY SEATS AND GARDENS OF
GREAT BRITAIN.

PENDELL COURT, BLETCHINGLY.

AFTER the many fortification-like obstructions which spoil the foreground in so many country seats, it is a great pleasure to see a beautiful old house made to live in, with nothing to keep one away from the door but the pleasant Grass. Pendell Court, the Surrey home of Sir George Macleay, is a beautiful house. From a gardening standpoint there are three distinct views of it which are good; first that of the lawn in front of the house, which, when we saw it was a flowery meadow yet uncut, and no beds or other impediments between the point of view and the house, with a group of some fine trees on either hand. It was a poem in building and in lawn. Quite on the other side a border of flowers, and a wall of climbers

because for one flower that is grown in our large gardens there are many dozen more beautiful waiting for a place therein. Those who care for the beauty of their gardens should not be afraid of a tree, a group of shrubs, a tuft of Ivy on the Grass, a bed or two of Roses on their own roots, or any beautiful object like that; but set patterns of beds, in the very place where the garden should be green and quiet, are a mistake in all cases where there is a more fitting place for them. The view from the house to the left is also free and charming—a wide meadow climbing up the hill through groups of trees, and reminding one a little of alpine pastures in woody regions.

How delightful it is to visit a garden where there is variety as well as beauty in the vegetation—where one meets with old friends that one has not seen for years, or finds them grown in new and better ways, or with fresh associations and



Pendell Court: View from the meadow

run from the house. Looking along this border to the house a shower of white climbing Roses is seen falling from the wall, and a gable of the house and a few windows and glistening rich Ivy behind form such a picture that one regrets to know is both old and rare. Another view of the house from across the water, showing its west end, is also very beautiful. There is a wild Rose-bush on the right and a tuft of Flag leaves on the left; before one the water and its Lilies; then a smooth gently rising lawn creeping up to the house, the windows of which on this side are all wreathed with lovely white climbing Roses. It will be observed that all these different views of the same house, although quite distinct, are all marked by the absence of the impediments which a false art frequently places so very near our houses—that is to say, formal patterns in beds, fountains, statues, and other like objects which destroy the repose which is desirable in such places. We are not an enemy of flower beds; on the contrary, we want seven in every garden for one that we usually see there, mainly

groupings. There is an expression common among persons interested in gardens which is very often applied to the type of garden we all know well, where a few common things are grown that one sees everywhere else, and these among the quite second-rate types of vegetation. That phrase is: "There is nothing there." The phrase is not exactly scientific, and yet it does explain the fact sufficiently from our point of view. Quite an opposite phrase must be used for a place like this, in which there is abundance of varied plant life, and great beauty of flower day by day as the seasons pass. There is also the charm of novel combinations of plants, such as ought perhaps to be suggested to every one who has to arrange them, and who realises that, varying always according to soil, situation, and even slight differences of climate, they are capable of being used and shown in ways absolutely without end.

Supposing that we had already considered most of the generic types, so to speak, in the various ways of arranging

hardy flowers, we were all the more pleased to see a beautiful little islet of plants on the turf arranged in a new way. On the smooth turf was a colony of hardy Ferns, among them several strong tufts of the larger native Grasses in bloom, and a tuft or two of *Acanthus*, half concealing with the Fern a nodule of rock. Towards the edge of the whole one solitary blackened stem of a tall Rhubarb half leant towards the ground. This sort of arrangement would be charming in quiet nooks. Perhaps it might be a little improved by a tuft of white Lily or Day Lily to give it colour, though good without that.

We so often see our old Roses in a starved and wearied state from many years' blossoming, perhaps unpruned, that one wishes sometimes to see grown well, in fresh rich soil, very young plants—that is to say, with the same advantages that are given every year to our newer Roses. Here is a bed of the York and Lancaster Rose, with very large carnation-striped blooms carpeting the ground. Few have seen it so handsomely grown. It is much to be desired that somebody would grow the white Provence and the finer of the old Roses well. Their defect is, perhaps, that of too short a bloom; but nowadays, when we begin to understand the beauty and the advantages of mixtures of plants of different types succeeding each other in the same ground, or in the same bed, it is easy to compensate for this defect of the summer Roses, if defect it be. Both spring and autumn flowering plants, to precede and succeed them, might be planted in the same beds without in any way hurting the Roses; in fact, there is good reason to believe that wholly different types of vegetation occupying the same ground are not unhelpful to each other. In any case, they enable a gardener to reap a much richer harvest. Speaking of Roses, it was charming to see a bush of *Rosa lucida*, a bush about 4 ft. high, with glossy leaves like an evergreen, perfectly laden with deep rosy flowers, having a peculiarly delicious odour. If only for relief, these single Roses, with their golden brushes of stamens, are essential in good gardens. Some like the single Roses best.

Near the water there was a noble group of both *Gunnera manicata* and the *Gunnera scabra*, the old and the newer large kind, both grandly developed like gigantic Rhubarb plants, but even more broken and finer in form. It would be difficult to find anything better grown or more judiciously placed. In a wild bank of water weeds, climbing steep out of the water, there was a tuft of the foliage of the common Rhubarb, which also looked remarkably effective. On a level with the water, and in partial shade, was the finest mass of the Japan Primrose ever seen, with flower-stems 3 ft. high, bearing (July 17) six whorls of blossoms and seed pods and one whorl of flowers, the last just fading out of bloom. The largest leaves were 20 in. high and 8 in. across. In this position, level with the water, they had lived through the past severe winter without the slightest injury—had, in fact, come through it more safely than other plants of the same kind in drier positions. This speaks sufficiently of the hardy nature of this Primrose. By following a like course, its very distinct and valuable qualities will be developed.

Near the base of some of the trees along the drive one may notice that the turf is not mown, but, on the contrary, the red wood *Lychnis* and Foxgloves, and the large Grasses and other wild plants are allowed to have their own way. These, however, mark the place where many Crocuses, Meadow Saffrons, Daffodils, Violets, Polyanthus, and Snowdrops are at rest. In spring and autumn they jewel the ground around these trees—another arrangement enabling one to have bits of "wild garden" in the pleasure ground. The taller wild summer and autumn flowers are left, to prevent any injury to the foliage of the more precious life at any season of the year

when budding, or growing, or decaying. There is also a little, a very little, of the true wild garden, very well done and very effective—a little clearing under the branches of stately trees a little winding green walk, with banks of very tall Foxglove rising one above the other, pale and spotted kinds, with very tall heads; tall herbaceous plants and groups of orange and white Lilies, all splendid in the cool shade of trees, some of which are richly wreathed with Honeysuckle.

Since Sir George Macleay came into possession of Pendell Court many alterations have been effected, with a view to the improvement of both the immediate and distant surroundings, particularly with regard to the views obtained from the principal windows. The garden itself, however, shows the greatest improvement. Previously there was little beside the one-acre walled-in kitchen garden and a few hothouses, but now there is a vast extent of glass, and the place is rapidly becoming famous for its rich collections of all classes of cultivated plants. The houses, about a score in number, are mostly of recent construction; they are well built, and the details of heating and ventilating admirably carried out, and there is a happy attempt everywhere to hide the pipes and other hard surfaces, inevitable in such structures, by putting a little line of rock without and about the hot-water pipes, and planting on this some fine-foliaged plants, which quite hide the pipes, and break up in a refreshing way the harsh lines, and they also contain what our botanic gardens should oftener contain—some tasteful arrangement of plants—that is to say, the contents of the houses, consisting often of very rare and precious plants, are arranged in the most picturesque manner.

Tropical House.—On the upper side of the small but well-kept walled-in kitchen garden is one of the principal ranges of hothouses, the centre one being the largest and loftiest house in the garden. This house is devoted to tropical plants of large growth, and here they flourish in a manner rarely seen. Mr. Green, Sir Geo. Macleay's gardener, is a staunch advocate of planting out in free soil, and it is to this circumstance that his success in the culture of all classes of plants is in a great measure attributable. Not a trace of a stage or shelf is to be seen in this house, but the whole of the ground surface is occupied by a bed of rich soil of good depth and thoroughly drained. In this bed are thriving, in almost native vigour, grand examples of *Musas*, among which *M. sumatrana* is remarkable on account of its rarity; its huge leaves tower luxuriantly above all other growth. Another plant remarkable for its ample foliage is the rare *Solanum jubatum*, surpassing in this respect all other species with which we are acquainted. Of the beautiful *Mackaya bella* there is a fine bush, which annually is a floral sight in itself, being covered completely with its long, drooping clusters of mauve-tinted blossoms. It was from this plant that we prepared our beautiful coloured plate which appeared in *THE GARDEN* last year (Vol. XVI, p. 150). *Carolinea longiflora* is another fine tropical shrub or low tree, of which there is a fine specimen, and equally fine are examples of *Lagerstrœmia indica*, the Violet-scented shrubby *Labiata* *Tinnœa æthiopica*, *Lasiandra macrantha*, *Cyanophyllum*, *Higginsia*, *Phyllanthus*, single and double *Hibiscus*, and a host of others. Against the back wall of the house are placed tall branches of a dead Pear tree, on which twines and hangs in graceful profusion the rich foliage of *Cissus discolor*, forming a striking contrast with the somewhat cumbrous stems of the Night-flowering Cactus (*Cereus McDonaldia*), which seems to revel in the same position. Around the glass walls of the house, which are carried up straight from the base to the roof, the twining branches of the singular flowered *Aristolochia ornithocephala*, *Pleroma elegans*, and *Stigmaphyllon ciliatum* interweave their slender branches in elegant festoons.

The only path runs from door to door, and, unlike those generally seen in plant-houses—straight and edged with hard formal tiles—it is slightly tortuous, and margined with variegated Grass, Lycopods, Ferns, &c., so as to form a charming fringe, and an imperceptible transition from the bed to the walk.

This house is flanked on either side by a lean-to house ; one

The roof and back wall are hung with climbers of various kinds, Aristolochias and Passifloras being specially fine, the latter including the rare *P. Hahni* and *trifasciata* as well as such beautiful kinds as *P. princeps* and *kermesina*, while in suspended baskets is grown a fine collection of species of that much neglected genus *Æschynanthus*. Adjoining this house is a small one with a low roof, in which is grown a rich collection

of greenhouse bulbous plants, all planted out in a bed of light soil, elevated near the glass. Under such conditions the reputedly difficult to manage kinds of bulbs thrive remarkably well here. It is in this house that Mr. Green grows the *Brunsvigia Josephinae* so well under the conditions he mentioned the other day in THE GARDEN. Bulbous plants of doubtful hardiness, such as the *Hyacinthus candicans*, are afforded a place here as well as a numerous collection of *Oxalis*.

The Fernery.—There is a noble Fernery, with everywhere a rocky and mossy surface, with the tall dark stems of Tree Ferns for the pillars of the little landscape, so to say, and their graceful crests for its roof. Here many strange plants creep about in the moist shade, and Filmy and other Ferns are happy in a miniature Australian Fern gully. It is one of the most charmingly picturesque houses we have ever seen, for, notwithstanding its being only of recent formation, it has the appearance of a natural Fern glen or cavern that has taken ages to develop itself. Every part of it has been so arranged as to disguise as much as possible the formal rectangular outline of the house ; even the rafters of the roof are hung with Moss and similar growth, partly to subdue the glare of light, and partly to give the structure a more natural aspect, while each bold projection, deep recess, overhanging ledge, or rugged arch is furnished with the various kinds of Ferns best suited

to them. Moreover, the natural appearance of all these intricacies is heightened by the reflecting miniature pools of water, each occupied by suitable water plants, that are placed in various parts of the house. Ferns of various degrees of tenderness are grown in this house ; in one part are those that require the temperature of a warm greenhouse, in another those that thrive in a cooler atmosphere, while those that are hardy occupy a stony cave-like recess, approached from the main portion of the Fernery by rugged stone steps and placed beneath a low rustic archway. The Filmy and other moisture-loving kinds have a congenial recess set apart for them, in



Group of Gunneras on lawn at Pendell Court (see p. 148)



Distant effect of group of Gunneras (see p. 148).

is used as a Vinery, and the excellent crops of Gros Colmar Grapes we saw therein in October last was a proof that Mr. Green can grow good fruit as well as botanical treasures. Against the back wall of the Vinery were large plants, well furnished in fruits, of the Guava (*Psidium Cattleianum*), a tropical fruit not nearly so much grown as it ought to be. The corresponding lean-to house to this is occupied by a collection of various plants of small size, with the exception of a huge specimen of *Medinilla magnifica* growing in a large tub, the finest example of this noble Melastomad we have seen. It is fully 8 ft. in diameter, and a glorious sight when in flower.

which they thrive admirably. Tall Tree Ferns diversify the surface so as to obviate any appearance of monotony, and Bromeliads, Gesnerads, and Melastomads that flourish along with Ferns on the wall have a cheerful appearance in summer when in flower. The winding paths of the Fernery lead to a corridor-like house, occupied chiefly by cool Orchids and fine-foliaged plants of single growth. At the extremity of this house is the one in which Mr. Green grows cool temperate plants so finely. As usual here, they are all planted out in a long border, and trained either to the back wall or to the erect supports of the house. Here was *Bomarea Cardeii* bearing at the time of our visit a huge pendulous umbel of flowers, numbering about thirty, and well nigh 3 ft. through—a fine sight, indeed. *B. multiflora*, *B. Caldasii*, *B. oligantha*, are also grown here equally well, and the profusion of flowers which they bear and the healthy look and breadth of their foliage clearly show their requirements are well attended to. Several species of *Fuchsia*—many of them rare—are represented by fine specimens, a remark which also applies to *Brugmansia Knightii*.

Stoves, Orchid Houses, and Aquaria.—These are approached from the corridor, the largest being a spacious span-roofed structure, to which is joined another of similar size, ranging at right angles with the first. One portion is devoted to a fine and thoroughly representative collection of Orchids; the other is occupied by a spacious tank, in which are grown tropical aquatics, the most noteworthy among which are the new *Eichornia* (*Pontederia azurea*), *Thalia dealbata*, *Nymphaea gigantea*, *Lotus, scutifolia*, and various other species, and *Nelumbium speciosum*. The shallow margins are beautifully fringed with such handsome plants as the Iris-flowered *Canna*, *C. iridiflora*, the most brilliant in bloom of all the so-called fine Iris-foliaged plants, and a plant which everyone should try to grow well, for its brilliancy and grace are inimitable. Egyptian Papyrus, *Alocasias*, *Hedychiums*, and a host of other water-loving plants, while, twining among branches placed at the back are *Thunbergias* and *Bauhinias*, all apparently luxuriating in the warm and moisture-laden atmosphere, which also suits admirably the requirements of Pitcher-plants, which are suspended in baskets overhead. Those exquisite little water plants, *Azolla pinnata* and *Salvinia natans*, that float on the surface, as well as the feathery foliaged *Herpestis reflexa* and several *Pistias*, all added to the charming beauty of the plant life with which this aquarium teemed. The range is divided into three compartments, one of which is devoted to a fine collection of Orchids, one to the cool section (chiefly *Odontoglossums* and *Masdevallias*), and the third to a miscellaneous collection, including scandent Aroids and shrubby Leguminosæ, such as the *Brownias*, so handsome when in young leafage. There is also a beautiful little hothouse, in which those strange tropical plants, the Bromelias and *Tillandsias*, are planted out on mossy stems and rock surfaces, in which they look at home and thrive as well as in their native tropical jungles. These constitute the principal houses, with the exception of some Peach and Fig houses, and a large newly-erected house, in which, by the way, we saw some thrifty plants of the showy, though rare and difficult to grow, *Telopea speciosissima*, which Mr. Green hopes to succeed with. In a series of pits and frames are grown large numbers of hardy plants, some of which represent the reserve or duplicate stock for the hardy herbaceous plant borders, and the remainder are those that require to be permanently grown in pots. Some of the more tender of shrubs that thrive in the open air are grown to perfection trained against the outside walls of two houses running parallel with each other, so as to form a passage-like opening. This position seems to suit admirably such kinds as *Berberi-*

dopsis corallina, *Lardizibala biternata*, *Bignonia capreolata*, *Stauntonia hexaphylla*, the New Zealand shrubby Asters, and various others: a hint worth remembering, as many might like to grow these beautiful shrubs under such circumstances.

F. W. H.

THE FLOWER GARDEN.

COLOUR AND BEDDING PLANTS.

THAT beauty, like truth, is many-sided, is nowhere more evident than in a garden, where one man will call a thing hideous, and the next beholder think it the acme of all that is beautiful; and yet each may be right from his own particular standpoint. As writer of the note to which "J. H." so flatteringly alludes, while differing in some respects from what it advances, I would fain say a few more words in support of what I then advanced. First place, "from the point of colour only," let me say, as a traveller who has beheld the glory of the Tropics, that the saying quoted by him, "the meadows and copses of the northern world are brighter and more glorious than those of the Tropics," is only partially true. While no low growing vegetation in the Tropics is so gregarious as to give such a delightful effect of colour as a hillside of purple Heather, a field of nodding Daffodils, or a copse of wild Hyacinths and Primroses affords, yet the blaze of beauty and colour presented by flowering trees in the Tropics exceeds anything I ever saw elsewhere. I have seen pyramids of stately swamp Lilies and sheets of Cardinal flower on the swampy prairies of America; I have seen fields of blue Gentian and acres of Narcissi and Pæonies on Monte Generosa, and Japanese hillsides clad in all the colours that wild Azaleas in fullest beauty can produce, and yet, one morning, coasting slowly along, close to the shores of the island of Timor, in the Malay Archipelago, my dazzled eyes beheld such a blaze of beauty, such a wealth of colour, and such exquisitely graceful forms of vegetation, that, whatever other travellers may say or see, to me that will remain the most heavenly vision of beauty these short-sighted eyes ever gazed upon! Trees one blaze of scarlet spikes of flower set in feathery green leaves, alternating with clumps of gigantic Cassia trees, whose golden blossoms scented the air, were the predominating features in the jewel-like mass of colour; but groups of tall Palms, airy Bamboos, and broad-leaved Bananas broke up the gorgeous masses of colour so happily, that the whole side of the island, from one end to the other, was as a garden should be—a glimpse of Paradise, to lift one's thoughts higher!

While fully appreciating the quiet charm of wild masses of our native flowers, it is hardly possible for those who have seen the stately *Poinciana pulcherrima* or *Amberstia nobilis* in full glory, or masses of *Bougainvillea* and *Bignonia grandiflora* hanging down in festoons that vie with each other in grace and colour, to say that there is no beauty to be compared with our native flowers, and so, though it be a great descent from forest trees and luxuriant climbers to stiff English garden beds, I would in those open and exposed lawns that so commonly surround our English country homes advocate one bold sweep of colour that shall, at least to those who have seen other lands, recall pleasant memories; and since so many of our most beautiful flowers are either evanescent in beauty, or so prolonged in their season of flowering that no great effect of colour at any one time can be attained, why not employ such enduring and long-flowering plants as are commonly called bedding plants, be they *Violas*, *Pelargoniums*, *Petunias*, *Calceolarias*, or any other that fancy or fashion dictate, where a mere glow of colour from the window is desirable, as I said before, to enliven our dull northern green and grey tones?

The reason why we do not fill our garden beds with such lovely subjects as Daffodils, Narcissi, Pæonies, Delphiniums, and the like is that neither their stature nor the duration of their flowers make them fit subjects for a trim lawn, while they show to great advantage backed up by trees in the welcome shelter of the shrubbery. Even the queen of flowers herself, the Rose, demands more shelter from storm and sunshine than many a garden can afford, so let us admire beauty, whether it spring from queen Rose, rare alpine, bulb, or despised "bedding plant," and admire, if possible, each in its proper place.

E. H. W.



Rheum among native plants by watercourse (see p. 143).

BULB GROWTH OF LILIES.

I was not a little surprised to find Mr. Miles (p. 29) taking up the thread of "Dunedin's" argument respecting the "annual" character of Lily and other bulbs. I scarcely think that much knowledge of a practical nature is gained by discussions of this kind; but as Mr. Miles has asked for my opinion, of course I am glad to give it. I entirely agree with those who still adhere to the opinion that Lily bulbs are perennial as opposed to annual. In calculating the minimum duration of the individual life of a Lily bulb, we must count from the growth of the seed until the seed-producing stage of the plant is reached, say under good culture a period of from three to five years. As a matter of course an annual addition of growth is made, and an annual change of centre, or one or more new flower buds are also yearly developed; but then this change of the flowering point, or centre, is Nature's general plan, since all plants, in one way or another, do precisely the same thing. All Orchids, for example, say *Cattleyas* or *Lælias*, make new flowering pseudo-bulbs every season, but no one thinks of calling them "annuals" on that account, since the old pseudo-bulbs are long persistent after flowering, and afford some amount of nutriment to the future growth and bloom, just as do the persistent scales of Lily bulbs in an analogous manner. Every gardener of course can readily understand that no plant ever flowers twice from exactly the same point, or centre, and it would be wonderful if Lilies were any exception to that rule. Even such plants as *Hoyas*, *Cyrtoceras reflexum*, *Oncidium Papilio*, *Masdevallia towarensis*, and a few others which apparently bloom again from the same point on the old flower-stems in fact do not do so, the flowers being reproduced from new buds which spring near to, but from quite a distinct axis to that of all former flowers.

Those observers who believe in the "annual" nature of all bulbs would learn something by watching the extremely slow growth or changes in such bulbs as *Amaryllis Josephina*, *Griffinia hyacinthina*, or even those of *Pancratium fragrans*. Solitary bulbs of the first-named ten, fifteen, and more years old are not uncommon. In the case of *Lilium superbum* the change of centre is well marked, and an intermediate state of things, well shown in the case of *L.*



Rheum officinale among Ferns and evergreen trailers on turf (see p. 143).

Washingtonianum, is also very instructive; in point of fact I consider all Lily bulbs as simply more or less rhizomatous stems, clothed with the persistent thickened bases of former radical leaves or "scales," and their mode of growth is simply to renew growth by elongation, i.e., to grow at one end more or less quickly, and to decay at the other end more or less slowly. In fact, the growth is closely analogous to that of the common male Fern, of a Primrose, or a hundred other common plants one could readily name.

I should say a Lily bulb is perennial, its individual life varying from three to five years, and the yearly increment of new growth I count as simply a change of bud-centre on the old corm or rhizome-like stem, or solid base of the bulb. After all, as "E. H. W." says, "What's in a name?"

F. W. B.

— Now that research and study have elicited additional facts and experience as regards Lily growth, I will, with your permission, state my views and convictions in regard to it. My friend Mr. Frank Miles, it seems to me, made a slight mistake when he stated that *L. Washingtonianum* was my stumbling-block. Now, this was not my stumbling-block, but rather his; because though well armed in favour of the annual theory, he cannot get over the fact that in *L. Washingtonianum* and others of the same stamp the accumulation of

several years' growth can be shown or traced. I, and with me certainly, the greatest part of experienced Lily growers do, by no means, deny the fact that a renewal of the bulb takes place; we only deny that the old bulb entirely disappears after a year's growth. Mr. Baines deserves our thanks for the careful and clever experiments he has made in reference to this matter. They furnish irrefutable facts, and his statements coincide exactly with my own experience. The majority of Lilies inhabiting the Old World are reproduced in the way in which Mr. Baines has so clearly pointed out. Somewhat different is the growth of *L. tenuifolium* and some small Eastern Asiatic forms, also that of *L. candidum*, *L. cordifolium*, and *giganteum*. *L. tenuifolium* and its allies are not strictly perennial, for it is not possible to grow on these for any number of years; as a rule, they are at their best in their third year, and break down as soon as they have yielded a good crop of seed. They grow very fast from seed, and in the second year only lose the two outermost scales. *L. cordifolium* and *giganteum* can be grown above the surface of the soil, and before flowering time the accumulated growth of two or three years can still be seen. The emission of the big flower-stem, and after that the seeding and enlargement of some side bulbs entirely devour the old bulb. In *L. candidum* it can be observed, when taken up soon after flowering, that the newly-formed bulbs, though they have absorbed many of the old scales, are smaller than their parent was, and that they are not strong enough to produce a flower-stem next year. They make a fresh growth above ground, and from that the young bulb is enlarged and scales added, which correspond with the number of leaves, to bring the bulb to a flowering size. American Lilies of the superbum and canadense type push the axis of the new-forming bulb sideways, and if circumstances are favourable the new bulb will attain a flowering size; if not, it will remain small, but will produce the following year a good large flowering bulb. The previous year's or parent bulbs, however, may remain alive for several years. *Lilium roseum*, or *Thomsonianum*, and *L. Hookeri*, now classed among the Fritillaries, are the only species which meet the annual theory. In this case leaf growth and the subsequent formation of the new bulb entirely devour the old one. —MAX LEICHTLIN, *Baden-Baden*.

LILIES BEST IN SHADE AND SHELTER.

LAST season in our garden at Oakwood I had a result confirming Mr. Ewbank's experience of *L. auratum* blooming thoroughly well in hot sunny places on soil without any admixture of peat. I planted a bed of bulbs and broken bulbs of *L. auratum* in a field on a warm slope fully exposed to the sun, the soil being light loam; these made but low growth, yet bloomed beautifully, better on the whole than those in partial shade and black vegetable soil in the adjoining wood. I attributed this to their having been planted late, and so escaping the spring frosts, and to their having a moist subsoil. The finest *L. auratum* I have ever seen were in Mr. McIntosh's garden; these have every advantage of shelter and shade for their young growth, and they have in addition the important advantage, very difficult to give in gardens about here, of a damp subsoil. I do not remember the exact position of the Lily bed in Mr. Ewbank's garden, but certainly thought that the position in Sir W. Hutt's garden chosen for Lilies was unsuitable, unless advantage were taken of the great hurdles, and in other parts of the grounds for purposes of shelter. There seems still a great deal to learn about Lilies; I have been groping for facts in their cultivation for many years, and have tried numerous experiments. I am much too old an experimentalist ever to venture to dogmatise, but when one finds the great preponderance of facts always pointing one way, we cannot help provisionally forming an opinion—mine is that, except in cold districts, most Lilies thrive best in shade and shelter in soil composed of two parts peat, one part good loam, and one part of sand.

Last season was an unusual one, the spring being cool and moist; after what we are now undergoing we may expect the spring when it comes to be dry and warm. It will be very interesting to hear whether Mr. Ewbank's results continue the same in a different season. I suspect that moisture some distance down for the roots to grow into is a more important element of success than has hitherto been supposed. It may prove that the advantage of peat is not due to its action as soil, but to the mechanical one of acting as a sponge to hold moisture.

If there be one fact considered established in Lily growing, it is that the roots should be kept more or less active; it may be considered very heretical, but in our spring climate my faith is beginning to be a little shaken even in this. The really difficult time for Lilies when unprotected by shade or otherwise is in the frosts we often have in the beginning of May. Now Lilies, say *L. auratum*, if taken up at their time of least growth, in late autumn or early winter, and kept in dry or nearly dry sand and planted again in spring, would not be above ground at the dangerous time.

In times of uncertainty it is a comfort to have some solid ground. In autumn we cleared out a *Rhododendron* bed which had grown too thickly, and replanted the Lily bulbs, barring the bulbs being eaten by wireworms or rats, not likely in the position. I have not a shade of doubt, from the experience of the two last difficult years, that at least the *L. auratum*, *L. Krameri*, and *L. speciosum* will be all that can be desired. I think the "*Liliomanes*," as Mr. Max Leichtlin christened the Lily brotherhood, may congratulate themselves on Mr. Ewbank having taken up Lily growing, as, besides his being known as an able and successful plant cultivator, he has the advantage of some inventive power as is shown by his pierced zinc slug guard and his new plant label. —GEORGE F. WILSON.

Heatherbank, Weybridge Heath.

— Mr. Ewbank's experience (p. 96) with regard to Lilies doing best in the sun is, I think, exceptional, as most cultivators find a certain amount of shade beneficial, but whether it is necessary for the stems and leaves is an open question, and yet I feel certain that it is for the collar and soil. I have had striking proofs of this with two plantations of *Lilium auratum*, the one sloping to the east, where the sun hits the ground hard the greater part of the day, and the other facing the north, where the plants get little or no sun with the exception of the tops, as they are sheltered by dwarf *Rhododendrons*, and here they grow strong, while on the east side they dwindle away, although both are in exactly the same kind of soil. *Lilium auratum* has a provoking tendency for deteriorating, especially when it suffers from want of moisture during the growing season, and this is why it will not bear the sun at the roots. Possibly a good mulching by keeping the ground cool and moist might save it; but to winter well, it must have free drainage and plenty of sharp sand about the roots to ward off worms and maintain the bulbs in a sound, healthy condition. The loss of *Lilium auratum* from some cause or other must be great in this country, or every garden would have been stocked long ere this, for every year we get tens of thousands of it, and yet it is not seen anywhere in quantity. It would be interesting to know under what conditions it grows so freely in Japan, and the kind of soil it flourishes in there, as we have only to imitate these to succeed better here than we have hitherto done. —S. D.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

The Single Parma Violet.—Will any reader tell me what is the single form of the Parma or Neapolitan Violet? Is it a species or a variety? and whatever it is, where can I get it? —J. H.

Cypripedium spectabile.—In reply to "Learner" (p. 140) I beg to say that this beautiful plant is quite hardy if placed in a sheltered situation. The winters it experiences in its native habitat—North America—are more severe than ours. It loves a moist and shady situation, but it should have bright sunshine in the early morning, say till 11 a.m., if practicable, or if this cannot be managed it should have artificial shading during the mid-day sun, as well as protection from chilling winds. The soil should be altogether peat, or peat and silver sand. If allowed to grow on undisturbed it spreads rapidly, and soon forms a strong clump. A very fine example is to be seen on Messrs. Backhouse's rockery, at York, near the water's edge, where scores of flowers are in bloom at once during June and July. —BROCKHURST, *Didsbury*.

Cypripedium Calceolus.—This is a very difficult plant to grow successfully. I have tried to grow it for several years, but it does not thrive. Of course it is quite hardy, being a British plant, and it grows wild and most plentifully in woods in the limestone district about Kendal. It should be planted on a limestone rockery with an eastern aspect in peat and leaf mould. —BROCKHURST, *Didsbury*.

— The two *Cypripediums* just named are perfectly hardy, and will succeed anywhere if a favourable position and suitable treatment are accorded to them. Out of doors they prefer a partially shaded spot, with deep and moderately moist soil. *C. spectabile* succeeds best in peat. They are both well adapted for pot culture, and should be grown in a cool pit, or in cold frames. I grow *C. spectabile* in good fibrous brown peat, with the pots half full with drainage. For *C. Calceolus* I use turfy loam and peat in equal proportions. I also plant some green Moss thinly over the surface of the soil, and this, by the time the plants are in flower, forms a dense mass, and vastly improves the appearance of the plants. They are syringed overhead once or twice every day during the growing season. I may say that these two species, with *C. pubescens*, are the easiest grown among all hardy *Cypripediums*, and are very effective plants. —J. DOUGLAS.

Dianthus Heddewigi.—The variety of form and colour in this *Dianthus* and its varieties is simply wonderful; last year I purchased

a collection of six varieties which on the 24th of February last were sown in a box of moderately rich soil, covering the seeds very slightly with mould finely sifted; they were then watered and placed in a Vinery kept about 50° by night and 60° by day. When germinated they were placed on a shelf near the glass, and as soon as the young plants could be handled, they were pricked off into 4-in. pots, putting five or six plants into one pot, and again placing them in the Vinery until well established. They were then taken from the Vinery to a cold frame, gradually hardened off, and planted out in the borders in clumps, each consisting of three plants, early in June. All the attention they required after that was staking the flower-stems, for which the prunings of Pear and Plum trees answer better than anything else. They commenced to bloom in August, and continued to do so till frost came. The single and semi-double varieties are very beautiful, but the double varieties are, to my mind, the best. Those who intend to grow these *Dianthus*es this year should purchase a packet of seed at once, as if not sown early and treated somewhat as above directed, they will not flower the first year.—H. HILLMAN, *Fenay Hall, Huddersfield*.

Carnations from Seeds.—Like Mr. D. T. Fish (p. 98), I am much in favour of these, as although plants raised from seeds may not yield the symmetrically formed flowers we get amongst the named sorts, they afford great variety, and are valuable for growing in beds or borders for cutting, for which purpose they are even preferable to such as come up to the florist's standard of excellence. By planting thick, if in beds, single ones can be pulled up and discarded without giving the bed a gappy appearance, and seedlings always grow strongly, whereas many of the named kinds grow but indifferently and yield very few shoots for propagating, but these can generally be had in abundance from seedlings. The best time to sow the seed is in spring, and if placed in gentle heat it soon germinates, and when the young plants are 1 in. or so high, they should be pricked out in sharp sandy soil in a cool frame where with plenty of air on fine days they will get strong and fit for planting by May in the positions in which they are to stand to flower.—S. D.

Gentiana verna in Bloom.—On uncovering the frames which have been matted over and thickly coated with snow for three weeks, I found a pan of this most lovely alpine flower in bloom, its dark blue as rich as if it had bloomed in the full sunlight, instead of during a hard frost, and covered with snow.—BROCKHURST, *Didsbury*.

TREES, SHRUBS, AND WOODLANDS.

FLOWERING SHRUBS AND TREES AT SAN REMO, ITALY.

I SPENT the earlier part of January this year at San Remo, on the Mediterranean. It is indeed a land of Palms and Olives. The gardens were so full of flowers early in the year, that I know not with which to begin, nor where to end. Towering *Eucalyptus* trees, with long drooping sprays of flowers and scimitar-shaped leaves, abound everywhere at San Remo, their Myrtle-like fragrance making itself felt as you pass, and quite permeating the air. A contrast in colour, but equally attractive is the *Schinus*—a *Terebinth*—with its long drooping clusters of coral berries sometimes hanging 1 ft. in length, and abundantly clothing the tree. This is diœcious; the male blossoms are open in January. Australia furnishes another beautiful tree for the Riviera. This is the *Casuarina*, a singularly picturesque tree with its weeping branches jointed like an *Equisetum*, to which indeed it owes its specific name. The flowers are catkin-like and diœcious; the tufted branches—it has no leaves—remind one of the plumes of the cassowary. I got it in plentiful flower in January. The stately Palms (*Phoenix dactylifera*), with their clusters of ruddy dates depending from slender golden stalks, are very conspicuous in the winter. *Bordighera*, not far from San Remo, is especially noted for its Palm groves, which flourish there in great perfection. Such are some of the more conspicuous trees of San Remo; but the flowering shrubs are quite as beautiful and are more within our reach. *Cassia corymbosa*, a native of Buenos Ayres, I would especially draw attention to. It is a large shrub some feet high, and in January it was covered with golden blossoms and bright green leaves. This seeds freely in the open air. *Brugmansia lanigera* shed its rich fragrance in our hotel garden; its fine droopers of large white flowers ornamented the shrub—a large one—on every side. A blue-flowered *Solanum* is a great ornament to the Riviera when blue flowers are scarce. The tufts of blue are on the topmost shoots, the rust-covered leaves and calyx harmonising with the colour of the flowers. It has the name of *Solanum lanceolatum* and is a native of Mexico. *Solanum sinuatum* is a highly ornamental shrub with white flowers and fine glossy foliage,

The *Salvias* are especially beautiful in the winter. Perhaps *S. tomentosa* with its woolly purple calyx and pale corolla is the least known in this country.

Salvia verticillata was loaded with its rose-coloured blossoms in some cases. I noticed also *S. ianthina* and *S. rosea*. I was glad to make acquaintance with *Aralia papyrifera* in flower and fruit, as being the type flower of our Ivy. It was flowering and seeding most abundantly in the open. A glorious *Passiflora* (*Tacsonia ignea*) flowered every morning as soon as the sun was up. It covered a wall as a trailer for some 20 ft.; near it, also trained to the wall, was *Buddleia madagascariensis*, with its yellow cream-coloured flowers and magnificent pale coloured leaves harmonising so happily together. But I pass on. What a beautiful hedge is formed by *Teucrium fruticans*, a native of the south of Spain. It, too, was in full blue flower—the pale underside of the leaves paler than the underside of the Olive leaves. *Linum trigynum* out in the open garden in full golden flower! No red spider there to mar its beauty, but looking as it really was the picture of health and luxuriance. It is a native of the East Indies. *Sphæralcea umbellata* is a very conspicuous shrub in mid-winter, its dark maroon Mallow-like flowers covering the tips of every spray. Nor is *Sparmannia*, a native of the Cape, less beautiful. It is a Linden-wort, and the parti-coloured stamens remind one of those of the *Capparis spinosa*. It is apt to become too leafy when grown in our conservatories. *Solanum jasminoides* as a climber is particularly graceful, with its light lavender flowers in trusses and its rambling sprays of foliage. I have always seen it trained along a wall, drinking in the golden sunshine of Italy. Large bushes of the Australian *Polygala grandiflora* adorned every garden in full healthy bloom even in the month of January. A shrub of *Justicia*, which I took to be *speciosa*, I noticed in full purple flower. The hive-bees often visited this flower in the early morning, perhaps on account of its pollen, as I noticed them to be heavily laden with bee-bread for their larvæ. *Echeveria metallica* was in full beauty, untouched by any cold wind, as also *E. coccinea*. *Freylinea cestroides*, one of the *Solanaceæ*, was flowering in the open. Though so named after our glorious *Cestrum*, it hardly deserves to be mentioned the same year as our autumn beauty. I must tell of the herbaceous plants some other time.

Hovingham Lodge, York.

PETER INCHBALD.

WOODLAND WORK FOR FEBRUARY.

PLANTING has been so long stopped by the severity of the weather, that every effort must be made to overtake the work as rapidly as possible as soon as the state of the land will permit of its being resumed. The wettest quarter will in all probability now have to be left over until spring. The larger hardwoods should receive attention first, and afterwards the smaller plants and seedlings may be removed.

Complete the thinning of mixed hardwood plantations, at the same time marking the Oaks for spring felling. This remark applies to Poplar, Chestnut, Birch, Beech, Sycamore, Willow, &c. As soon after felling as possible the produce should be removed from the woodlands. The cutting of coppice and underwood generally should now be pushed forward whenever this is not interfered with by severe frosts. During frosty weather the adherence between the bark and the wood is so slight, that the blow from an axe will frequently cause them to part sufficiently to admit water, and thus the formation of adventitious buds is prevented. Though the season would under ordinary circumstances prove too short for carrying out the whole of the work, there is little doubt that the most numerous as well as the most vigorous crops of shoots follow the felling operations of February and March. Either the splitting of the wood in cutting, or any rough usage which disunites the wood and the bark, will seriously interfere with the future crop. By using a moderately light axe for the stronger stools, and a good-cutting billhook for the smaller ones, but little mischief need be done. Cut low in all situations not liable to inundations, and trim off the surface of the stool so that no water shall lodge upon it.

Fill up all plantations requiring this. In rapid growing coppices this should be done during the spring following the fall of the underwood, otherwise the vigorous growths from the well-established stools will take the lead and eventually overtop and smother the young transplants. Plants from 3 ft. to 5 ft. in height when put in will be found the most serviceable upon clean land, and such will at the end of four or five years be found growing with more vigour than those of a larger size when removed.

Nursery work will consist of the manuring, digging, and preparation of beds for spring crops, putting in cuttings of various kinds, transplanting layers, and working around the stools from which other layers are to be made, as well as forking and hoeing among the nursery lines. The latter operations should be carried on only in dry

weather. All vacant plots not intended for green crops, and from which nursery stock has lately been taken, should be well cleaned, manured where necessary, and laid up roughly for the frost to act upon them. If very fine weather prevails towards the end of the month the seeds of Elm, Beech, Ash, Maple, and Sycamore may be sown, and the remaining Acorns, Walnuts, and Chestnuts be put in.

Give ample room to seedling plants intended to remain more than one year in the lines. Hardwoods, except the Birch, require from 18 to 20 in. in the rows and 5 in. in the lines; Larch, Scotch Fir, and some other Coniferous trees from 15 in. to 18 in. by 3 in.

Osiers for the basket maker may now be cut and tied in bundles, to be afterwards placed upright in a few inches of stagnant water, which facilitates peeling in the spring. Permanent Osier beds may also be planted in suitable land, which should have been previously well cleaned and manured. Situations where the water can be admitted and run off at pleasure will be found the best adapted to the growth of Osiers. Finish planting Hawthorn hedges during the present month.

A. J. BURROWS.

Pluckley, Kent.

ORNAMENTAL HEDGEROWS.

I LIKE the note (p. 128) on this subject, though it should appear that the primary object of all hedges is utility. There is no reason this main purpose should not be softened and toned down as much as may be by at least a fringe of beauty. Shelter, enclosure, protection might be secured without in so many cases making it so glaringly apparent that the one object of the hedge was to take the shortest cut between any two given points. If taste is to touch our hedges at all, the first thing it should do in many cases is to alter their lines before it ever attempts to mix their materials in the useful and easy mode indicated by the writer of the note referred to. It is hardly too much to con the marplots of our landscapes. Look where you may, go where you will, unless you stumble on to a natural wilderness, you are pulled up by a hedge.

The first question in reference to the majority of these is, How could it get there? And the second is like unto it: How in the name of any of the Graces can it be allowed to remain there for a single day? It is impossible to answer either question unless on the old dogged principle of once a hedge always a hedge, and ever on the same spot. The very idea of a row, in so far as it means straightness, is wrong for a hedge, though for that matter the crooked ones are, as a rule, no better, for they are mostly bent in the wrong place and in the wrong direction. If these structures seem too severe to any reader, let him walk forth for an hour in any direction, or take a gallop with or after the hounds, when the zero weather melts into the possibility of a canter, and say on his return whether my criticisms of hedges and hedgerows are not mildness itself compared with observed facts. With far better results alike in enclosures and shelters, and with even less expense, our hedgerows might be converted into flowing lines of grace and beauty. As at present posted they cut up too many of our landscapes with angular or square fragments. It is only needful to reduce one-half or three-fourths of them, and re-arrange the remainder to obtain as many sub-divisions as may be needful for tillage or pasture, and dispose the remainder so as to add to rather than detract from the beauty of the surrounding country. Of late years our landscape artists have seemed more intent on forming beautiful gardens here and there than in making the country itself beautiful. Too many of their choicest works are set down here and there like choice china or plate on a dirty table-cloth. It is high time the latter was dealt with, and the first step towards its improvement is to sweep off useless and misplaced hedgerows, as crumbs are swept off the dinner-table. It is no parody of existent facts to affirm that we cannot now see the landscape for hedgerows. But while waiting for new and higher lines of beauty, there is no reason why the old ones should not also be improved by such mixtures as a writer in *The Field* has recommended. In addition to the wild Roses, Briers, Jasmines, Honeysuckles, the better kinds of Blackberries or Brambles, beautiful in flower and fruit, the common Clematis or Traveller's Joy and other Clematises are a host in themselves for beautifying hedgerows; and then there is the common and other Berberis, notwithstanding the improved assertions of farmers anent the correlation between mildew and Berberis.

Crab trees, Aloes, wildling Apples, Pears, Cherries, Plums, inter-mixed sparsely with the White Thorn, would hardly sensibly weaken the hedge, while adding immensely to its beauty and variety. The intermixture of Maple, Beech, green and scarlet Filbert, variegated Elm, Oak might also be carried much further than it is; while for hedges near to the eye, there seems no good reason against forming part or the whole of them with some of the more spiny varieties of our cultivated Roses,

D. T. FISH.

Fine Berberis Darwini.—At Fetteresso Castle, the seat of Mr. Duff, near Stonehaven, there is growing alongside of a stream which borders the Pinetum the finest *Berberis Darwini* I ever saw growing in Scotland. It was, I should think, 10ft. or 12ft. high, with a corresponding size throughout. It must have been a very old plant and perhaps one of the first imported. Here, near Perth, though so much further south, I can scarcely grow it as my plants are generally much injured in winter, and especially so this season.—H. M. D. H.

Eugenia Ugni.—At Kilmory, in Argyle, Sir John Campbell Orde's place, I was struck by the magnificent specimens of *Eugenia Ugni*, 8 ft. or 10 ft. high, which I saw there last summer, loaded with Myrtle-like blossoms, also by the huge clumps of *Erica stricta*, which is quite naturalised there, and growing profusely on some parts of the moors where it had been introduced.—H. M. D. H.

Poisoning by Yew.—A Leicestershire farmer has sustained a serious loss this week through a herd of bullocks straying into the park at Gaddesby Hall. The ground at the time was covered with snow, and the bullocks appear to have browsed on the green Yew trees in the park. Many of the animals were seriously affected, but six of the number, valued at £25 each, were dead when found.

THE GARDEN FLORA.

PLATE CCLXX.—SINGLE DAHLIAS.

AT one time, and that very recently, no one ventured to have such a thing as a single Dahlia in his garden. In raising seedlings of the double type all the single forms, good or bad, were thrown away. Yet the change of opinion in favour of these handsome plants is so great, that in visiting a large nursery near London last year we found the manager busily occupied in "weeding" a large plot of single Dahlias of any double forms that happened to come among them. This is a healthy sign, and means that the hard lines which guided specialists in flower culture, and through them the public, are being broken down. It is well it is so, in this case at least, for these single Dahlias are bold and handsome flowers. We enjoy a fine double Dahlia as well as any flower, and last autumn in Norfolk thought the brightest effects seen in the cottage gardens there were afforded by a double scarlet Dahlia; but these single Dahlias are so distinct that they add a new charm to our gardens, and they are also very graceful in form, particularly some of the smaller species, such as the small lilac kind shown in our plate.

Varieties.—As to these there is no doubt that the majority have had their origin in *D. variabilis*, one of the first introduced species from Mexico. From it have been derived the innumerable double flowered kinds. Our plate represents two original species, *D. glabrata* and *D. coccinea*. The other two kinds shown, *lutea* and *Paragon*, are forms of *D. variabilis*. The last is a lovely kind, the rich maroon tint of the blossoms being overlaid with a velvety lustre, quite unattainable in colour printing. The clear yellow colour, too, of *lutea* is extremely desirable, and forms a fine contrast to that of the others. *D. glabrata*, known also as *D. Merki* and *Decaisneana*, is of spreading growth, attaining about 3 ft. in height and extremely floriferous, thus making a pretty border flower as well as being useful for cutting purposes. Other kinds in cultivation are *D. Cervantesi*, with crimson flowers and similar in growth to *coccinea*; *D. scapigera*, a slender kind, about 2 ft. high, with procumbent stems and white flowers about 2 in. across; *D. Maximiliana*, a tall growing species, lately brought into cultivation. It grows 6 ft. to 9 ft. high before it produces flowers, which are a delicate mauve tint and about 4 in. in diameter. The other cultivated kind is *D. imperialis*, one of the most beautiful of all. It was the subject of a coloured illustration in *THE GARDEN* (Vol. XII., page 352), but, unfortunately, on account of its not flowering until late in autumn, it must be sheltered under glass in order to bloom it well. Similar treatment must also be accorded *D. Maximiliana*, as it too is a late flowerer but both may be grown in the open air till the approach of frosts.

Culture and Position.—The easy culture of these plants and the freedom with which they grow in fresh, rich soil make them all the more useful to the public. They are useful for a variety of positions in the garden. They by themselves make fine masses or groups, and may also be associated with fine-leaved plants, such as the Cannas. For the mixed border they are very handy, and, being favourite plants in a cut state, they may in

large places require to be specially grown in nursery beds for that purpose. The fine named kinds, some of which we now possess, and which we shall no doubt see in increasing numbers, must be increased in the same way as the double Dahlias. But as some may desire to raise them from seed, this is easily done by sowing in heat. The large, well-prepared Dahlia bed was a fine feature at one time in gardens. It deserves to be revived; the various races of double and single kinds would enable us to make Dahlias a finer feature than ever.

Our plate was drawn from plants grown in Mr. Cannell's nursery at Swanley, in Kent.

NEW FERN.

(*NEPHROLEPIS DAVALLIODES FURCANS*.)

THERE are few Ferns that have become so widely distributed in so short a time as this crested variety of the Java Hare-foot *Nephrolepis*, a species which is seldom met with in private gardens. The peculiar characteristic of this variety is distinct forking of each pinna of the fronds, which are often divided at the extremi-



New Crested-fronded Fern (*Nephrolepis davallioides furcans*).

ties in a tufted or tasselled manner, and very handsome. Our illustration, which was prepared from a plant in the Royal Horticultural Society's garden at Chiswick, shows well the graceful habit of growth of this Fern, the fronds of which are always produced in this manner from a central tuft, and often measure as much as 3 ft. or 4 ft. in length. The fronds being of a hard texture withstand rough treatment better than those of most Ferns, and therefore valuable on that account alone. It thrives well in a warm greenhouse if supplied with an abundance of water in summer.

W. G.

Filling Ice Houses—Now that this operation is occupying a good share of attention, it may not be amiss to ask the opinion of those engaged in such work as to the merits of various ways of storing. For several years past I have discontinued packing the sides with straw, and have simply broken the ice fine before putting it into the house, in which it is beaten down firmly. It is also filled as full as possible, so that there is but little space for air left, but as soon as the outside temperature rises the door or passage leading to it is blocked up closely with non-conducting materials, and since adopting this plan, our supply of ice has lasted longer than when we took all the extra trouble of packing, for the more packing there is in the house the less ice can be got in. As a useful

addition to the ice-house I find it an excellent plan to make a stack of several cartloads on the ground level, covering it over securely from the external atmosphere, and this temporary stock enables us to keep the ice-house sealed up, as it were, until the summer is well advanced, for the breaking up of the surface, even for the smallest quantities, causes a deal of waste, and the longer this is left undisturbed the more certain will be the supply during the following autumn and early winter months.—J. GROOM, *Linton*.

GARDENING FOR THE WEEK.

Conservatory.—In order to give the inmates of this house the full benefit of light and air, such things as *Tacsonias* and *Passifloras* may be well thinned and shortened back in proportion to the distance they have to descend from the roof. If infested with white scale they may be pruned back to the old stems and well washed or dressed with some composition containing paraffin or turpentine. The beautiful *Kennedya monophylla*, also subject to the same pest, may be dressed in a similar way, care being taken that the dressing does not reach the roots. Where these, *Acacias*, and other vigorous climbers are planted in inside borders, top-dressings and liberal watering will be necessary. Immediately after the roof climbers are put right, complete the tying of pot specimens, give them the best position for light according to their several requirements, and arrange smaller subjects, such as *Primulas*, *Cyclamens*, and forced bulbs now in flower, amongst them, where a little shade will be more beneficial than otherwise. Large standards of *Acacia lophantha*, *Fuchsias*, *Brugmansias*, and *Heliotropes* may now be pruned and placed where they can have a little heat and moisture to encourage them to break before they are re-potted or tubbed.

Ferns.—Preparation should now be made for potting the strong growing kinds, the size of the pots being regulated by the purpose for which these useful plants are required. For general decorative purposes the *Adiantums* are invaluable, as they may be had in beauty all the year round, and when no longer wanted as specimens, they may be split up into small pieces and grown for furnishing. To secure stout fronds for cutting, and to withstand the dry atmosphere of cool houses, a large percentage of sandy loam should be used and the plants should be grown near the glass, where they can have an abundance of light without being exposed to the direct rays of the sun. For ordinary potting, peat, loam, sand, and charcoal make a suitable compost, clean pots and crocks being indispensable. Robust varieties are best potted before the new fronds become far advanced, the more delicate kinds being allowed to start into growth before they are disturbed.

Plant Stove.—Take advantage of a favourable change in the weather for getting on with the potting and tying of the climbing and other occupants of this structure. *Bougainvilleas* and *Allamandas* started last month reduce, repot, and train before the young growths get too far advanced. Cut back later plants for succession and encourage the buds to break before they are disturbed. Encourage *Clerodendrons* and train the past year's growths regularly over the trellis on which they are intended to bloom. If young stock of any of the above is wanted, fine young shoots taken off with a heel when 4 in. to 6 in. long will strike readily in a close, strong bottom-heat of 80° to 90°. Use peat and silver sand and pot the cuttings singly in small pots. Pot the earliest *Caladiums*, and place a few more roots in heat, also *Alocasias*, using clean pots or pans, plenty of crocks, fibrous peat, *Sphagnum*, and dry cow manure. Start a few more *Gloxinias*, reduce those introduced last month, and repot in rich, light compost. Where last year's seedlings have been grown through the winter, they will now be coming in very useful, and will well repay all the care that can be bestowed upon them. Feed the winter-flowering *Begonias* with good liquid, as every joint gives a flower. Where cut flowers are in constant demand, the old *Nitida alba* and *N. rosea* should be extensively grown where they can have plenty of moisture and head room. Shorten back or tie down *Luculias*, and put in cuttings, using short sturdy bits with a heel in preference to gross sappy growths. More cuttings of the beautiful old *Euphorbia jacquiniædora* should be put in, as it is difficult to have too many. Young growths are difficult to strike, but last year's stems cut into 2-in. lengths and inserted up to the top bud strike as freely as *Verbenas*. If inserted

four in a pot and shifted on, ten to fifteen sprays may be obtained from each pot.

Orchard Houses.—Incessant firing to keep the early house at a temperature little exceeding the freezing point will have rendered great watchfulness necessary for the prevention of injury to the roots of trees placed near the hot-water pipes. If once allowed to become dry, stone fruit trees are sure to cast their buds, and the better to avoid this, one trustworthy person should always attend to the watering, not only of pot trees, but of pot plants of all kinds. Early trees now in flower must be regularly impregnated, the shy kinds with pollen from Royal George Peach or Elruge Nectarine, and the floors, paths, and stems frequently syringed with tepid water, to counteract the drying influence of fire heat. For mild weather we have recommended a temperature ranging from 50° to 65°, but under existing conditions 40° at night and 50° by day will be much safer figures to work upon; indeed, if kept dry, the blossoms of the Peach will not suffer in a temperature of 36°. When the fruit is set syringe well, gradually disbud, and close early with sun heat to redeem the time judiciously lost in severe weather.

Late Houses.—Having so often drawn attention to the penny-wise-and-pound-foolish notion of having unheated orchard houses, it is to be hoped the severe month just passed away will have settled the point where hitherto undecided, if it has not settled the trees for the coming season. Where the frost has penetrated the balls of trees recently taken in, it will be necessary to place plenty of dry Fern or litter about them until they are properly thawed. Avoid giving water while in a frozen state and check the swelling of the buds by giving plenty of air when the sun, now becoming powerful, is shining on the roof of the house.

Strawberries.—When the first plants are in flower, give them the benefit of every ray of light, air, and sunshine. Fertilise with a small brush, thin off late blossoms, and syringe well with tepid water when the fruit begins to swell. Although so impatient of heat through the early stages, the fruit of forced Strawberries attains the largest size when grown on shelves near the glass in a fruiting Pine stove, from which the plants should be removed to a lower temperature, where they can have a circulation of dry, warm air for some days before the fruit is used. Keep up a succession by introducing fresh plants from the reserve pit, which should have a little artificial warmth to prevent the temperature falling below 40° at night. Plants in cold pits which have been caught by the frost must be kept dark for a time, and if thawed gradually, there will be immunity from broken pots when the soil begins to expand.

Forcing Ground.—After so much severe weather this department will have to play a very prominent part in the spring supply of vegetables, and the better to carry on forcing operations an abundant supply of well-worked fermenting material is of the first importance. Make up beds for every light that can be devoted to vegetables. Always see that the soil is used moderately dry, otherwise it chills the beds, and plant or sow when the heat is on the decline. Plant Potatoes in pots and place in the houses, also in pits and frames; cover moderately deep and spread a good layer of dry Fern over the surface; shut down the lights and keep close until they begin to show through the soil. Make another sowing of Carrots and Radishes under glass and on a warm border. Force Seakale and Rhubarb either in the Mushroom house, or by means of fermenting leaves placed round the stools. The former plan gives the least trouble, but the latter produces the best quality for table. The failure of so many old Asparagus beds last season will have struck a heavy blow at the extravagant system of lifting roots for forcing; but where still practised, the roots at this season require a sharp heat of about 80° to start the buds, and the beds should be well lined to keep up an even temperature. Mint, Tarragon, Mustard and Cress may be grown in boxes placed in an early Peach house. Roots of Chicory now placed in the Mushroom house will give an invaluable addition to salads, particularly where Endive in pits is frost-bound. Pits containing the latter, Lettuce, and Cauliflowers must be opened with great caution, and if frosted, they must be thawed in the dark. Make up Mushroom beds at short intervals. For giving a regular supply the piecemeal system is the best. Make the beds firm, and spawn at a declining heat of 75°; soil 2 in. deep and beat solid. Avoid the use of hay and other insect protectors, but place a light trellis made of laths over the bed; spread clean mats on the top and syringe lightly when moisture is needed. Make a good sowing of French Beans for transplanting into pots or beds in forcing pits, with hot-water pipes for surface heat and fermenting Oak leaves beneath the roots. Where pits of this kind are at command the quantity and quality of the produce is always satisfactory, and the risk of the spread of red spider is reduced to a minimum. Prepare fruiting pots for the autumn-struck Tomatoes recently placed in 4-in. pots; use rough, rich compost; fill the pots half full and lath up as soon as the fruit is set. Make sowings for succession

and keep the seedlings near the glass. As some time will elapse before anything can be done in the kitchen garden, a pinch of Leek seed and any particular kind of Onion, Brussels Sprouts, Paris Market Lettuce, Autumn Giant, and Walcheren Cauliflower may be sown in beds or boxes under glass for pricking out.

Vines.—Attend to tying out until every part of the trellis is covered with foliage, and pay attention to the artificial impregnation of shy setting kinds, including Foster's Seedling, Sweetwaters, and Frontignans. Thin as soon as they are out of flower, and guard against overcropping as one of the worst evils in Grape culture. The inside borders may now receive a good mulching of rotten manure or short horse manure, which may be sprinkled with tepid liquid after the house is closed for the day. After so much severe weather, external coverings will require renovating with additional fermenting material of some kind. Dry Oak leaves, being mild and steady in their action, answer better than manure. Late houses should now be ready for starting with gentle fire heat. Dress all recent wounds with styptic, give inside borders two or three waterings with water at a temperature of 90°, and protect the external roots with a good layer of leaves or Fern. Where the severe weather has delayed border operations, lose no time in getting the work finished when the frost breaks up. If the roots have the range of external and internal borders, one or other of these may be taken out and re-made at almost any time without endangering the crop of Grapes.

Pot Vines.—Place Vine eyes in heat. Prepare a bed of fermenting leaves, also dry warm compost for pot Vines intended for next year's forcing; cut back Vines placed in heat in January are generally used for growing into fruiting canes. These should be allowed to make 2 in. or 3 in. of growth before they are disturbed, when they may be shaken out, potted in rich rough compost, and plunged in a bottom heat of 75° or 80°, where they can have the full benefit of solar heat and light.

Melons.—Assuming that very early Melons are required, a few of the strongest plants of some suitable kind should be selected for special treatment. To be successful, the cultivator must have full command of top and bottom heat, and the pit should be well filled with fermenting Oak leaves as a plunging material for the pots, which may be placed in rows nearly touching each other. Plunge the pots, fill with the compost previously recommended, and when warm, place a single plant in the centre of each. Train up sticks to the trellis. Encourage moderately strong growth. Stop the leader when two-thirds are covered and impregnate all female blossoms on the first set of laterals. When two fruit on each plant begin to swell, pinch all points and laterals and preserve every old leaf from the top of the pot upwards. Feed cautiously at first and more freely as the fruit attains size. Top-dress with old Mushroom manure and keep the bottom heat at 80° to 85° by frequent additions to the fermenting material. Where arctic weather has delayed the making of beds for frames, the work must now be seen to. The system of working manure and making up beds being well understood, we have only to advise patience in the preparation of the hills, which must be dry, with a declining heat of 85° near the centres and free from rank steam when the young plants are turned out. Keep the glass clean. Cover well with dry mats, always leaving a chink of air on at the back, and place linings round the frames before the hills are planted.—W. COLEMAN.

NOTES FROM NEW ENGLAND.

Abutilon insigne.—I first cultivated this species, figured in *THE GARDEN* as *A. igneum*, more than twenty years ago, and although it is very little known, I have always had half-a-dozen plants or so of it for "old acquaintance sake." It is by no means popular, pretty as it is when well grown, and it is so slow of propagation, and of growth too, as a pot plant, that it does not possess sufficient merit in comparison with the free-flowering Abutilons to make up for those defects. For a long time I always grafted it on the old *striatum*; I have also seedlings from it fertilised, but they do not vary from the original. As all these plants are now estimated wholly by their value for cut flowers, *A. insigne* is not considered worth cultivation; but to all who love flowers for their intrinsic merits, and have a suitable place to grow them, this Abutilon will always be admired. Its habit of blooming in clusters I have thought might be utilised in the way of hybridisation with the single-flowered ones, so as to produce a race of cluster-blooming Abutilons; its colour, too, ought to give us kinds free from the yellows and browns, now the prevailing tints. I hope hybridisers will try the experiment.

Mulching the Surface of Pots with Moss.—As my old friend, Mr. Peter Henderson, has told us how little your market gardeners know about the use and value of the plough, he now

shows your gardeners how little they understand how to grow large plants in very small pots by the simple process of mulching and feeding. By-and-bye, perhaps, you will come to adopt some of our American notions of good culture. Just at present I am not ready to advocate Mr. Henderson's system, because I do not see its special advantages, unless it is to get all out of a plant we can before it dies, for I do not suppose the mulching is to go on indefinitely in the same pot. If so, the practice is indeed a valuable one. Neither can I think that a large plant in a small pot would be very desirable as a decorative object, for the pot and plant should bear some relative proportion suggestive of solidity. A Rose bush, 4 ft. high and 4 ft. broad, and bushy as it should be to the base, in a 7-in. pot, would be less attractive than in a 9 in. or 10-in. one, just as a Palm or India-rubber tree, 8 ft. high, would lose half of their beauty if standing in a 10-in. pot, suggestive at once of toppling over. As regards the feeding with bone dust, I quite agree with Mr. Henderson as to its value. Mr. Henderson is a practical man, and no advocate of antiquated ideas. A few years ago he denounced the system of "crocking" pots as "utterly wrong in theory and perfectly useless in practice" whether the plant was "a Pelargonium or an Orchid." I do not say that Mr. Henderson is not perfectly correct, because I have never adopted his system; I am glad, therefore, to see Mr. Baines take up the process of mulching with Moss, and trust that the discussion of this subject by your intelligent correspondents, as well as that of the drainage of pots, may be settled to the satisfaction of cultivators, and do away in the latter case with a great deal of useless labour and expense. I am, however, ready to admit that many rapid-growing strong-rooting plants that complete their growth in a single season do not need, at least in our warmer climate, the quantity of drainage so generally recommended by English cultivators.

Packing Plants.—I notice the remarks of "Justicia" in regard to packing plants for a voyage across the Atlantic, and have not been at all surprised at the result as experienced by different parties. With ordinary judgment in packing for such a distance, and with good plants, there ought not to be a loss of five per cent. Plants that I have sent to Stevens and others have arrived in just as good condition as when sent to New York, only eight hours' travel. I am sorry to say such has not been my luck with plants from Europe, and I attribute the loss in many cases to the character of the plants. It might be as well to know that no plant that is not thoroughly rooted and, by good rights, pot bound will travel the distance and confinement with any safety, and never ought to be packed up. Loose packing, "Justicia" says, is the worst practice, though I am not sure it is any worse than close packing under just the same conditions of the plant. If too damp and loose I really think there would be less loss than if too damp and firm, as in the latter case they would heat and rot. But if the conditions of moisture are just as they should be, close packing is the only safe one. The "dry side of moistness" was the secret of success in the box of plants alluded to.

Well-enriched Earth and Ample Moisture "F. W. B." believes in, and so do I. Drought and poverty of soil are, as he says, great evils to avoid, and he instances several plants to show what liberal and rational treatment will do. *Lobelia cardinalis* grows when sometimes the whole winter the plants are covered with 1 ft. or 2 ft. of water, and at all times very near some rivulet or low moist place. *Lilium superbum* grows in swamps, inaccessible at some seasons of the year, and where they get the saturated nutriment of decaying leaves several inches thick. Plants, of course, will live and grow even under very unfavourable conditions; but when we aim at superior culture, as we do in long Parsnips, big Mangolds, or huge Cabbages, we need something more than decaying leaves and arid sand to produce satisfactory results. As regards the stopping of flower-stems of *Lilium longiflorum*, I have no doubt he is correct, if he means forcing up a new shoot late in the season from the root, as when forced in pots it flowers again in summer. The finest display of our native Asters I ever saw was on a sloping field, where the scanty crop of Grass had been mowed close in June. In September these same plants, which would have produced only a single shoot, were literally loaded with branchlets completely covering the ground in all their diversity of tints, as well as sizes of flowers. Where extra large blossoms are the object and few of them, stopping too severely, or even at all, may be doubtful; but where profusion is desired the result is directly the reverse. C. M. HOVEY.

Boston, Mass.

The Grey Plover.—I agree with "A. R." (p. 81) that proof is wanting of the authenticity of the eggs referred to by Mr. Culverwell in a former number of THE GARDEN as having been found in Britain. I drew the attention of a distinguished ornithologist to the note in question, and he, too, thought that there must be some mistake.

Can it be possible that the eggs were those of the "golden plover?" —F. W. B.

THE KITCHEN GARDEN.

SOWING ONIONS ON HEAVY SOIL.

THE time for Onion sowing will soon arrive, and as it is one of the most important of vegetable crops, a few words on the subject just now may be useful. If the ordinary routine of garden culture has been followed, viz., letting Onions follow Celery, or when the land is in good condition from having been ridged up during the winter and heavily manured for the preceding crop, or, failing that, land that has been manured and dug up roughly during the winter, our usual practice has been to select a fine drying morning in March, to stir the surface soil with wooden rakes, and after a short interval to rake the surface down fine and remove stones, sticks, &c.; shallow drills are then drawn 1 ft. apart, and the seed is sown thinly, but evenly. It is then covered in by treading, and pressed down with a light roller, for it is almost impossible to compress light soils too much for Onions. On such soils the crops come up regularly and evenly, and make rapid progress up to the time when they begin to form bulbs, and then if dry weather ensues mildew is very destructive to them, arresting their growth, and causing them to keep badly. The Onion fly is also a great scourge on light soils, and although by repeated dustings of soot, sulphur, and lime these and other enemies of the Onion crop may be arrested, and although by copious applications of liquids the crop may be finished off in good sound keeping condition, yet produce never has that beautiful mild flavour which Onions from stiff, holding soils, where after they start into growth they go right on without check, possess.

We have here a new kitchen garden, the soil of which is so stiff that it seems hopeless to try to get the surface fine enough to cover small seeds, but from the excellent quality of some transplanted Onions of the previous year, we resolved to give a fair trial to a large quarter that had been prepared for Celery, and was therefore in good condition as regards manure, and to meet the difficulty of getting the surface fine we provided a large heap of wood ashes and burnt earth, with which, after the seed was sown, the drills were filled, omitting the rolling, and treading the surface as little as possible. The seedlings made very slow progress for some time; in fact, other crops sown at the same time in lighter soil looked half grown before these were fit for thinning, but after the summer fairly set in they soon made up for lost time, and when harvested I never saw so fine a crop, and the quality was excellent. I may remark that the plants were left much thicker in the rows than in previous years; the weather was so excessively wet at the time when we wanted to thin them, that it was impossible to perform that operation without great injury to this kind of soil, which runs together like paste when wet, and bakes as hard as a brick when dry; consequently they were merely hand-weeded, and this taught us a lesson about over-thinning, for although so thick there was no small Onions, for they over-lapped each other in the rows like clusters of Mushrooms, and for the future I do not mean to thin nearly so much as I have hitherto done.

I would strongly urge any one with stiff, unkindly-working soil to lay in a stock of wood ashes and burnt earth, by burning up all kinds of garden refuse at once, and storing it in a dry shed; it well repays the labour, and is a ready means of getting rid of all kinds of shrubby trimmings and refuse of all sorts, for when a good heap of red-hot cinders is burning, almost any conceivable garden litter may be reduced to a valuable ash. In addition to being so valuable for covering seeds, too, this ash is equally so for dusting young vegetable crops on which slugs and other garden pests delight to prey. The sorts of Onions I find excellent in every way are Bedfordshire Champion, a kind that is very mild in flavour and a heavy cropper; Reading Onion, excellent for main crops; Danver's Yellow, a fine early Onion; and James's Keeping, one of the very best and most trustworthy Onions grown, keeping in sound condition until the autumn-sown crops are fit for use in spring. J. GROOM.

Linton.

Preparing Ground for Onions.—This being a good time to prepare ground for Onions, perhaps a few hints on the subject may be acceptable. First of all, choose open weather, if possible,

and bastard trench as much ground as it is intended to crop, laying it up in ridges as roughly as possible. Let the ground lie in this state until the end of February or beginning of March, according to the weather; then level the ridges down, and put on a good dressing of half-rotten manure, to be dug in to the depth of 6 in. Mark out the beds 5 ft. 6 in. wide, with 1-ft. alleys between them; throw the soil from the alleys regularly over the beds, then roll all firm, the firmer the better. On these 5 ft. 6 in. beds draw six drills, the first 3 in. from the side of the alley, the others 1 ft. apart. After sowing the seed cover lightly with a rake, then run the roller again over the bed. The after management of this crop consists in thinning early and in giving a good dressing or two of soot in summer and in keeping down weeds.—JOHN A. COLTHORPE, *Summerville, Waterford.*

PROPOSED EXHIBITION OF VEGETABLES.

ALTHOUGH in this matter my support may not be of great value, yet I most heartily second Mr. Gilbert's proposal to hold an exhibition of vegetables. No one has more persistently complained than I have of the utter indifference shown towards vegetables by the Royal Horticultural Society. This reproach does not apply to Chiswick, where Mr. Barron has always done all that laid in his power to render vegetables interesting; it is at South Kensington where the slight has been shown, and where, but for the liberality of the eminent seed firms named by Mr. Gilbert, any competition in the case of vegetables would never have been seen. However, a gardeners' exhibition of vegetables will be in their own hands, and they can arrange or act as they please. The proposal to have from gardeners a maximum sum of 5s. is a modest one, and shows that the proposer has no desire to ask from any one pecuniary sacrifices, and it is a bold, independent, and commendable suggestion that subscriptions be confined to gardeners only. To exhibitors must be left the important matter of fixing the date of the show and the place, although one may well question whether the August Bank Holiday is the best time or South Kensington the inevitable place. What will Mr. Gilbert say, for instance, to holding the vegetable show at Manchester in conjunction with the international show to be held there in August? For one visitor to the show at South Kensington there will be one hundred at Manchester, but no doubt both at Manchester and at South Kensington, as well as at fifty other places that could be named, plenty of willing space would be found for the show and the needful appliances. If the show be held on the Bank Holiday Monday, it will necessitate the preparation of all the exhibits on the previous Saturday, and at that warm time of the year very much of their freshness would be lost before they could be staged. It would also be needful that exhibitors from a distance should come to London during Sunday, and that would to many be distasteful, and probably to all inconvenient, owing to the few trains that run on that day. No doubt if the proposal is taken up, as I hope it will be, these small considerations will meet with respect. Out of the thousands of gardeners there are in this country it ought not to be difficult to find 250 or 300 willing to subscribe 5s. each, and thus provide a liberal list of prizes. I would add that if the proposed Arthur Veitch Memorial Fund be a success, it might well be devoted to the provision of memorial prizes for vegetables.

A. D.

THE MARKET GARDEN.

WHAT RAILWAYS MIGHT DO FOR GROWERS AND THE PUBLIC.

FEW symptoms of our day are more significant than the success of the co-operative stores among classes hitherto supposed to regard "trade" with dislike. It is not the intention of this article to discuss the Civil Service speculation, but it may be "taken as proven" that there is now a willingness of a very large section of consumers in England to protect itself against undue profit claimed by distributors by becoming itself willing to undertake part of the task of distribution. Now, a very considerable amount of the difficulty in the way of occupiers (and, therefore, indirectly of owners) of land arises out of the enormous share of the price, to the consumers of all but a few crops, which is absorbed by middlemen. The unwillingness of farmers to depart from the four-course system is to no small degree produced by the fact that, if one grows anything besides Wheat, Barley, and meat, it is very hard to get the value of it. Directly one steps out of the beaten track, one is confronted with the question, "But how am I to find a customer?" Indeed, it is quite certain that a knowledge of how to market unusual farm produce is even more deficient in England than is that of how to grow it. And it may be conceded that there has

been hitherto a well-nigh insuperable obstacle in the way of bringing growers and consumers together. Those who are willing to pay best prices for best crops produced have been almost inaccessible, partly from an indolent dislike of employers to have anything to do with business, and partly from the eagerness of upper servants to have everything pass through channels out of which *douceurs* were to be had, the grower of fine fruit, vegetables, dairy produce, and small-meats has had little chance of getting anything like a half of what the selling price of his produce really was. Before he could sell at all, he had to find an agent who had a connection with retail tradesmen; and he, in turn, had to find someone who had a connection with the house-stewards or housekeepers of wealthy folk.

Now, all this was not only difficult, but repulsive to men of ordinary notions of honour. To find buyers was difficult enough; but to connive at a system which, on the face of it, was wasteful where it was not dishonest, was more unpalatable still. Accordingly, the higher class of occupiers have hitherto stood almost entirely aloof from all the minor sources of revenue from land. It was not that they could not grow the things the nation stands most in need of now the ports are open, but they could not endure the ways of the people through whom alone the articles, when produced, could be converted into remunerative coin.

But with a change of class feeling a change of action becomes possible. Thousands of heads of families in towns have recently got into the habit of marketing for themselves, and of paying ready money for what they take. Now, where so much has been achieved, it seems hard to believe that a slight further advance towards a sound system cannot be made. And it may be hoped that those who use the choicest kinds of fruit, vegetable, dairy produce, and small-meats will be ready to hereafter apply for them to the persons who actually produce them. Considering that railways are ready to distribute three-gallon cans of sea-water to any householder in London for sixpence, the prices the same railways are charging for hampers of country produce are enormously extravagant. There does not seem the slightest reason why a small uniform rate should not be fixed for small boxes or hampers, of one uniform size, of farm or garden produce, to be delivered promptly on arrival; nor why thousands of London houses should not have, every morning a box or hamper direct from some grower miles away, with two or three dishes of vegetable or fruit, with poultry and dairy produce too. It is not too much to say that a demand of this kind would revolutionise the practice of hundreds of farms and gardens, and whilst it would deliver the occupier from the intolerable thralldom of the whole dealing class, the town householder would be protected from the rapacity of retail tradesfolk. Milk is already delivered, at one uniform rate, for months at a time; so could eggs, butter, choice Apples and Pears, and the hardier vegetables. Of course, details would have to be arranged to suit the requirements and the produce of each sharer. But it rests entirely with the railway directors if, and when, such a traffic shall be organised. Without the railways nothing can be done; with their intelligent assistance almost any development of a free contact between grower and consumer will become possible.

The more one regards the present position in England, the more unbecoming the popular cries are seen to be. "Rents must come down" is one; "farming can never pay" is another—yet all that one wants to feed a household, except flour, is steadily increasing in price. Why must a system of cultivation, devised (as the four-course one was) when a scarcity of Wheat was, of all things, the danger to be guarded against, continue to be bound down on a whole class now, when the influx of Wheat is a certainty, because all the world is growing it? Why must the English producer, of the things Englishmen like best to eat, be ever prevented from getting on better terms with the people who really pay for what he does for them? There ought to be on every line in the kingdom a revision of parcels traffic, and an endeavour made for the railways to undertake the place of distributors ordinary between the producer and consumer of perishable produce throughout this island. It would be the best of all methods of increasing the revenue of railways. Two of the largest classes would gain immediately, and there would be a perceptible diminution of the waste which now occurs from getting perishable commodities into the hands of the people, who are ready to put them to immediate use before they be spoiled.

G., in *Field*.

Broken Cocks for Cuttings.—Having often experienced great difficulty in striking cuttings of *Leucodendron argenteum* and other Proteaceæ, I determined to try the experiment of putting them in a compost consisting only of finely broken cocks and sand, as it is a well-known fact that cuttings root far more readily when in contact with the sides of a pot, or on a cock, than elsewhere. I took cuttings of the half-ripened wood, inserted them singly in small

pots, the sand running down between the interstices of the crocks and making all firm. They were then placed under bell-glasses in a temperature of about 60° and kept moderately moist, the glasses being removed for an hour or two every morning, to dry the leaves, as they are very liable to damp. The result was that more than one-half of the cuttings struck, a sufficient percentage to recommend a trial of the plan for other subjects that strike root reluctantly.—ALPHA.

THE INDOOR GARDEN.

CORDYLINE AUSTRALIS.

THE merits of this useful plant are so well known and appreciated by most cultivators, that it would be unnecessary to notice it were it not evident that although extensively cultivated in greenhouses, its hardiness, which enables it to withstand the winters of the Scilly Isles and Ireland, is but little understood. From the fact of there having existed out-of-doors and without



Cordyline australis.

protection plants of this *Cordyline*, both in the above mentioned countries and in the south of England, there can be no doubt of its hardiness, and therefore it cannot be too strongly recommended for planting on lawns and by the sides of walks, &c., positions for which its noble and graceful character renders it most fitting, and where doubtless with a little protection from severe weather it would be quite at home. It grows naturally to a height of from 10 ft. to 15 ft., and forms several branches at the top, each of which bears a dense head of long, graceful, deep green leaves. It grows very freely, and delights in a rich, open soil, care being taken that water does not remain about the roots. It is a beautiful object in the greenhouse, and may be grown in pots or tubs without difficulty. Like most *Cordylines*, this species may be propagated either by means of seeds, root-cuttings, or by cutting off the head and striking it, and afterwards treating in the same way the young shoots as they push on the old stem.

There is considerable diversity of habit and form in the plants of this species, the leaves in some being stiff and broad, in others narrow and drooping, and again more or less thinly arranged on the stem. The form here represented is that of a

lax-growing variety. The species *C. indivisa* may be distinguished from *C. australis* by its having a dark brown leaf-midrib, and being of a much duller green than the latter species. *C. australis* is a native of New Zealand, where the thick fleshy roots which it produces are much sought after by the New Zealanders as food. The fibre of the leaves too is used by them for a variety of purposes.

Z. B.

ABUTILONS FOR WINTER FLOWERING.

MANY of the varieties of *Abutilon* are useful for furnishing cut flowers in winter, the individual blooms of such kinds as *Boule de Neige* and *Lemoinei* being suitable for floral decoration generally, the large bell-shaped flowers when allowed to droop down in their own natural manner presenting a graceful and pleasing appearance. Many when employing *Abutilon* flowers for bouquets wire them in such a manner that they come into a rigid upright position, the mouth of the bloom being thrown upwards. This is a great mistake, as it not only imparts an air of stiffness to the general arrangement, but it diminishes the effectiveness, and detracts from the beauty of the flower itself. When *Abutilon* flowers are used in the composition of a hand bouquet, they should never be introduced into the centre of it, as when thus situated, their free, pendent character cannot well be illustrated. In wiring them, the wire should not be brought up to the calyx, but a portion of stalk should be left quite free; then the flowers, being placed in the outer circle, may be allowed to droop and show their true character. Plants in 6-in. or 8-in. pots are useful for winter decoration, but the real value of this plant is not apparent until large specimens are obtained. They should be grown on until they come into the largest-sized pots, and then they will furnish a large amount of bloom for cutting.

Cuttings.—*Abutilons* are easily struck from cuttings of the young growing wood taken off in spring and placed in gentle warmth. By the beginning of May they should be placed in a cool, airy greenhouse, shifting them as required and stopping the young shoots, so as to induce a shrubby habit. There are two ways of treating *Abutilons* during the summer: either they may be grown along in pots, or they may be planted out. The latter system has the merit of simplicity, and in the case of large specimens or where the object is to grow the plants along quickly to form such is by far the best method to follow. At one time I used to grow most of the varieties in the form of large specimens expressly for winter flowering, and few plants were found to give such good results for time and labour expended. They were cut back tolerably hard about April, allowed to start into growth, and about the latter end of May were planted out on a piece of well-prepared soil, fully exposed to the sun. A mulch of manure was given them, and they were watered well in dry weather. At the same time care was taken that each plant had plenty of breathing space, a most important point with respect to these quick-growing subjects, for, like the *Chrysanthemum* and similar flowering plants, the quality and quantity of bloom obtained much depends upon the maturity attained by the wood when active growth has ceased.

Potting.—By the middle of September the plants should be taken up, and the roots crammed into pots just large enough to contain them. Water them well, and place them in a shady, sheltered situation, syringing them occasionally should the weather prove at all hot and parching. Towards the latter end of the

month they will need to be placed in a light structure, where the temperature is maintained sufficiently high to keep them gently moving, when a continuance of bloom may be looked for all through the winter. Although *Abutilons* like a genial warmth throughout the cold season, and are not satisfactory winter flowerers unless they get it, they by no means delight in a close, stewing atmosphere. When placed in a stove or in a forcing-house, where a high temperature and confined atmosphere reigns, they run to leaf and appear to lose the power to form flower-buds. The proper place for them is the so-called temperate house, where *Bouvardias*, *Cyclamens*, *Heliotropes*, and such-like plants are brought gently along, and where an equable temperature is maintained, but where a free circulation of air is induced when the weather permits. For flowering in small pots I should prefer not to plant out in the summer, but rather to grow them along in a free, generous compost, plunging the pots up to their rims in an open, sunny situation, and watering freely with liquid manure when the roots touch the sides of the pots after the last shift. One-year-old plants are apt to run too much to wood when planted out, but the little check which they get when the roots are confined throws them into a flower-bearing state.

J. CORNHILL.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Cements.—I shall be greatly obliged if some correspondent of THE GARDEN will kindly tell me if they know of anything that will stop and join glazed earthenware hot-water pipes, and that will cement the inside of a hot-water tank. I have been advised to use fire-clay. Will this answer the purpose? and how should it be used?—J. A.

Camellias (p. 146).—*Alexandra*.—The old double white, *Ninfa Egeria* also white, and *imbricata* and *rafa* (red) will answer your purpose.—W. P.

Size of Blooms of Chrysanthemums.—Surely "Peregrine" (p. 90) cannot be in earnest in his statements in reference to this subject, and in his ridicule and sweeping condemnation of large flowers of Chrysanthemums generally. I have endeavoured for some dozen years past to annually bring together a good display of this fine autumn flower, and to master its peculiar requirements, but have never succeeded in securing the display in "seven months." I do not think flowers grown on plants of that age would bear favourable comparison with those two or three months older. I agree with Mr. Molyneux (p. 40) that it requires several seasons' experience to become thoroughly acquainted with the true character and requirements of the Chrysanthemum, both as to the selection of the right bud and proper culture. It is as easy to manage plants well as otherwise, and I fail to see that it is more creditable to produce a huge bunch of Grapes than a large well-developed Chrysanthemum bloom. Both require a large amount of skill, patience, and study, and both when produced are examples of the highest cultivation. In medium-sized blooms of the larger flowered section of Chrysanthemums perfection is not attained; that can only be secured by having perfectly formed buds on plants with thoroughly matured wood that have received such treatment as only a cultivator of some years' practice could give them; and "Peregrine" admits that the biggest of everything invariably wins the prize. Large, finely-formed, and well-coloured blooms always claim attention, while those of medium size are passed by unnoticed.—J. W. SILVER, *Parley Gardens, Otley, Yorkshire*. [Here this discussion should end.—ED.]

Fuel for Saddle Boilers.—If the "Gold Medal" boiler is a "saddle," as I take it to be, with some of the flues inside instead of outside, then coke alone answers perfectly both as regards economy and the supply of heat. We have twenty-three structures heated by this "boiler" including six Vineries, two Pine stoves, two plant stoves, Peach and other houses, and there has not been a single cwt. of coal used for more than six years—nothing whatever but coke; yet it will be seen that in some of these houses a considerable amount of heat is required as well as in some of the forcing pits which contain succession Pines, winter Cucumbers, &c. We have a large conservatory heated by the old form of saddle boiler which has been set for sixteen years; this also is entirely heated with coke. Although we have had at least two winters likely to test our heating apparatus we have not had a house one degree too low during the coldest night.—DAVID WALKER, *Dunorlan*.

Linum trigynum not a Shade-loving Plant.—I notice in THE GARDEN (p. 69) some remarks upon this *Linum* as a shade-loving plant. "Hibernian" has come to the conclusion, apparently from long experience, that this plant will live or, at any rate, flower best in shady situations. As he considers that "a hot, dry atmosphere is death to it," it may interest him and others among your readers to know that the plant in question is largely grown in

this neighbourhood, where shade is far from abundant and water scarcer still. In my own garden here, where it is exposed winter and summer to the full glare of an African sun, it thrives splendidly, and has been for the past three months one sheet of yellow blossom. Whether, with transportation to more northern climates, this plant may change its nature I cannot say, but here, at least, *Linum trigynum* can hardly be considered "a shade-loving plant."—HIBERNO-ALGERINE, *Mustapha, Algiers*.

Campanulas for Pot Culture.—In addition to those mentioned (p. 103) as being suitable for pot culture I would remark that the best I have met with for that purpose are the different varieties of *Calycanthema*, which embrace several shades of colour, the most effective being the blue and pure white, the latter being very attractive, good strains having both calyx and bell very large. The habit is all that can be desired, being regularly branching and pyramidal, well-grown specimens reaching a height, when in flower, of about 2 ft., and blooming freely from base to summit. To get them strong, the best way is to sow the seed in May and grow the plants on in rich soil in pots during the summer, giving them plenty of water and liquid manure, and in the autumn they should be plunged in ashes in a cold pit, so as to have their heads up near the glass, where they will winter well and flower early the following spring. Being biennials, it is necessary to make a sowing annually at the time mentioned to have some to bloom every year, but the good old perennial pyramidalis may be propagated by means of offsets obtained from the crowns. Both the blue and white pyramidalis are remarkably fine for the embellishment of greenhouses, as they grow to a height of 5 ft. or 6 ft., and make a grand display when in bloom.—S. D.

—In addition to the dwarf Campanulas mentioned in THE GARDEN (p. 103) the following kinds are well worth growing, viz.: *C. Portenschlagiana*—*C. Pichta*, a good and distinct kind, the flower being rather like a miniature "Blue Bell of Scotland;" *C. Haylodgensis*, a hybrid, raised by Mr. Anderson-Henry, between *C. isophylla* and the blue form of *C. pumila*. The flower resembles the latter in size, but has the open shape of *C. isophylla*. *C. Barrelieri* is an excellent pot or basket plant, but on rockwork most difficult to protect from slugs. *C. Hosti* (if it be the true one) looks very like a dwarf form of *C. rotundifolia*. Is this Campanula a hybrid? At this time of year, though most of the leaves are narrow and pointed, a leaf here and there is round like that of the Scotch Bluebell; another kind which also seems like a dwarf form of *C. rotundifolia*, is one sometimes called *alpina*. The true *C. alpina* is, however, one of the rarest of species. M. Fröbel's, of Zurich, is said to be the one place in Europe where it is to be obtained; and it is by no means easy to keep it. There is a form of *C. pulla* of rather a lighter shade of purple, and of freer growth than the typical form. The beautiful little Ivy-leaved Harebell makes an excellent carpet for small choice bulbs such as *Puschkinia scilloides*. *C. hirsuta* is sometimes said to be a variety of *C. fragilis*, but as the true *fragilis* is described in the "Botanical Magazine" (quoted in THE GARDEN, August 21, 1880) as having flowers about 2 in. in diameter, and more rotate than bell-shaped, *C. hirsuta* can hardly be a variety of it. Is it a variety of *C. garganica*? Though quite distinct from it in having hirsute foliage, it strongly resembles *garganica* in flower and manner of growth. Of somewhat taller growth than those named, the following are good kinds, viz.: *C. nitida*, *nitida alba*, *nobilis*, *tenella*, *rotundifolia alba*, and *turbinata alba*. *C. carpatia alba*, though taller than the latter, is too good to omit. Amongst tall kinds, *C. Burghalti*, with large white flowers, and *C. Van Houttei* contrast well with the dwarf sorts. Mr. Niven, of Hull, thinks that both the latter Campanulas are hybrids; he has never known *Van Houttei* to seed, and though *C. Burghalti* seeds freely here, the seed saved in 1879 was bad, and it is doubtful whether any of that saved last year will germinate. The history of this last Campanula appears to be as yet unknown.—C. M. OWEN.

The Language of Flowers.—Dr. Eriksson has recently described at Leipzig the protomeristem in the roots of Dicotyledons. It appears that the root apex consists of three zones of meristem, the plerome, the peribem, and the dermocalyptrogen. In Monocotyledons two additional types are met with, says the doctor; one in which there are four zones of meristem: calyptrogen, dermatogen, perobem, and plerome; the other type displays calyptrogen and plerome only, with a common zone for cortex and epidermis. We believe this doctor's cuticle must be too pachydermatous for castigation from a hebdomadary journal of phanerogamic and pomologic horticulture, so we think it better to let the further discoveries of this verbose doctor transmigrate to other situations.—O.

MR. GERALD HOWATT gives us a very poor account of California as a field for enterprise, horticulturally or otherwise. He says, men are very glad to work there for 2s. a-day. Every kind of scheming and land jobbery is rife.

THE FRUIT GARDEN.

TROPICAL FRUITS.

The Nutmeg Tree (*Myristica fragrans*).—The small tropical tree which affords us the well-known Nutmeg and Mace spices



The Nutmeg (showing the Mace).

of the shops is *Myristica fragrans*, otherwise known as *Myristica moschata*. Our illustration gives an excellent idea of its foliage and fruit. As the orange-yellow fruit approaches maturity it splits open, as shown in the accompanying engraving, disclosing the Nutmeg or hard seed within its netted arillus, being the portion known as Mace. This plant produced ripe fruit at Sion House some years ago when a tropical fruit house formed a speciality in that establishment, and it is now met with in good botanical collections.

Cocoa (*Theobroma Cacao*).—This large-leaved shrub or small tree is a native of Brazil and other parts of South America, but

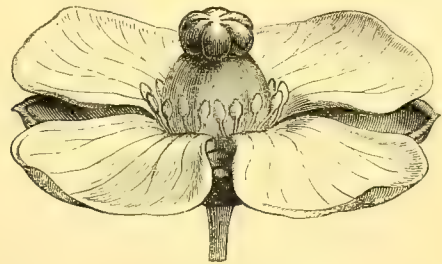


Flower and Fruit of Cocoa Tree (*Theobroma Cacao*).

is naturalised in the Eastern Hemisphere. Its culture is now being extensively carried on in Ceylon, where soil and climate are alike suitable to its growth and fruitage. In Singapore it is a common ornamental plant in gardens, and is also cultivated for profit on a small scale. Even in remote and little known islands, as, for example, those of the Sooloo Archipelago, it has long been introduced, and is now the national beverage. There are several varieties varying in the colour and flavour of their fruits. The plant is by no means uncommon in botanical gardens in this country,

where, however, it but rarely attains to the fruiting stage of existence.

The Durian (*Durio zibethinus*).—The regal Durian is considered the perfection of fruit food by the races of man who inhabit its peculiarly limited native habitat, and is the produce of a tree which, under favourable circumstances, attains a height of 100 ft. or more, and a girth of gigantic proportions. The fruit itself is as large as a child's head, and its husk is thickly set with stout spines similar to those of a Horse Chestnut. The flavour and fragrance, or rather odour of the custard-like pulp which surrounds its seeds, have often been described, and quite recently (Vol. xviii., p. 570) in our pages. The flowers are well known, and are of the size and contour, as shown in the accompanying engraving. The chalice-like calyx is set with scurf-like scales, the petals rise upwards in an elegant vase-like manner, and are of milky whiteness, while the five bundles of stamens are curiously arranged within, the filaments being not infrequently branched, or perhaps fasciated rather. These large blossoms exhale a peculiar odour



Flower of the Mangosteen (*Garcinia Mangostana*).

and the nectar they contain attracts numerous semi-diurnal moths, and the enormous fruit-bats are also fond of regaling themselves on the Durian trees during the flowering season.

The Mangosteen (*Garcinia Mangostana*).—Of all tropical fruits that are most generally acknowledged as the finest by Europeans is the luscious Mangosteen. As cultivated in Eastern fruit orchards it forms a dense pyramidal or round-headed tree, with leathery leaves similar to those of the Portugal Laurel, but larger in size. The large wax-like blossoms are of the size and shape shown by the annexed engraving, the inaperient fruit with the peculiar radiate stigma being seen surrounded by broad cruciferous petals and a ring of anthers. The ripe fruit is of a purple colour, the snow-white sections of pulp being enclosed in a tough leathery skin, itself a powerful astringent and a common native medicant in cases of dysentery. There are from four to seven sections of pulp in each fruit, and of these often only one and rarely more than four are perfect, the rest being abortive or seed-



Flower of Durian (*Durio zibethinus*).

less. The exact number of pulpy sections can always be known ere the fruit is cut, as they invariably correspond with the rays of

the stigma. The edible pulp is sweet, crisp, juicy, and melting, with a delicate and refreshing acidity, and even confirmed invalids may eat it with impunity. The plant is rarely seen in botanical collections, and has been fruited under hothouse cultivation at Sion House some years ago.

The Bread Fruit (*Artocarpus incisa*).—This is one of the most familiar of objects in tropical gardens, forming a low, bushy tree, its peculiar charm being its large glossy leaves. In rich or well-manured soils it grows very quickly, and produces fruits nearly as large as a child's head. In the South Sea Islands it is supposed to be native, and its fruits are there used as food in an extensive way. They are scarcely bread-like in flavour, however, when cooked; indeed, as baked, its spongy pulp has somewhat of the flavour of mashed Potatoes and Apples mixed together. There are green and purple-leaved varieties, the latter being sometimes grown in hothouses for decorative purposes. Several other species of *Artocarpus* produce edible fruits, such as, for example, the Jack Fruit (*Chaca*), *A. integrifolia*, the enormous fruits of which frequently weigh $\frac{1}{2}$ cwt. each or more, and are produced from the hard-wood trunks or branches of the tree, and not on the young branches, as in the case of the true Bread Fruit. Nearly related to the *Chaca*, but smaller and of superior flavour, is the *Champada* (*A. champada*), a fruit highly prized by the natives of the Malayan Islands. It has entire leaves, like the *Chaca*, but they are hairy beneath, those of the last-named being quite smooth above and below. Another Eastern fruit of the Order is the *Trap* or *Tarippe* Fruit (*A. Blumei*), the produce of a large spreading tree, with large, rusty, hispid foliage, its seeds being surrounded by a sweet, but rather slimy, custard-like pulp. The large Chestnut-like seeds of all the edible *Artocarpi* are roasted in the embers, and eaten much as roasted Chestnuts are eaten with us in Europe, or roasted Earth Nuts (*Arachis*) in America. Apart from their edible fruit-giving properties, some of the *Artocarpi* yield caoutchouc, and others a peculiarly tough and strong bark cloth of felt-like texture. The bark cloth afforded by *A. elastica* in the Malayan Islands was, no doubt, the first clothing ever worn by the human inhabitants of those regions, and inland even now a strip of this bark around the loins is the only covering adopted by particular tribes. It is prepared by maceration and beating with clubs, and specimens in various stages of manufacture may be seen in the Economic Museum at Kew.—B.



The Bread Fruit Tree (*Artocarpus incisa*).

THE ORCHARD HOUSE.

ALL trees in pots or tubs in unheated orchard houses should have been re-potted or surface-dressed during the month of October, or not later than the early part of November, and all trees planted out in prepared borders or beds of soil in this structure should have had the necessary attention paid to root-pruning or transplanting, while all pots as well as the surface of beds or borders in which fruit trees are planted out should have been well mulched with light littery manure, with the view of preventing injury to the roots as well as to the pots during severe weather, and also to obviate the necessity of watering. If all this has been attended to, it will be advisable to allow the trees to remain as they are for the present, or until a favourable change takes place in the weather, as it must be borne in mind that in a large unheated structure, such as most orchard houses are, and with an external temperature at zero, the inside temperature of such a structure will not range much more than a few degrees higher.

Pruning the Trees must be proceeded with as soon as favourable weather sets in, and in order to prevent insect attacks as well as mildew it is always advisable to dress the trees with a composition consisting of Tobacco water, soft soap, flowers of

sulphur, and a little soot. This, in the form of a thin paint, should be applied with a soft brush, taking care to avoid injury to the buds. Many have to some extent given up pots in the case of Peaches and Nectarines, and have planted them out in properly prepared beds, and, generally speaking, I believe the best results have followed this practice, as by annual or biennial moving or transplanting and occasional root-pruning such trees can be kept under proper control quite as well as if kept in pots, while the injurious and sometimes fatal consequences resulting from neglect in giving water are less likely to occur. Whether, however, such trees are kept in pots or planted out in borders, they should all have a thorough soaking of water as soon as they are pruned and dressed, and if in pots or tubs properly arranged and placed perfectly level. It might also be an advantage if the water used for this purpose was somewhat warmer than the atmosphere of the house; and as no water may for some considerable time have been applied to the soil, it is possible that the latter may be drier than it appears to be; therefore it should be carefully examined, and if necessary fairly moistened. Some place all trees in pots and tubs in the open air as soon as their fruit has been gathered; and even allow them to remain there after the trees have been repotted or surface dressed. By this means the structure is, to some extent, set at liberty, and is

Shelter for Fruit Trees.—The importance of shelter for fruit, and all objects of culture subject to danger from exposure to parching wintry winds, is well shown by the necessity for it even in the humid and genial climate of Florida. Surrounded and almost penetrated by warm water, and so far removed from the Northwest, the home of the fierce winds that sweep the whole expanse of the country at times with a besom of destruction, leaving nothing alive that is not sealed up with exuded gum or resin, or otherwise sheltered from the thirsty and furious blast, one would think that in Florida at least there might be exemption from its ravages. But

found to be very useful for accommodating flowering Chrysanthemums and other partially hardy plants. One precaution in regard to this practice is, however, absolutely necessary, and that is the repotted and surface-dressed trees should be placed in a somewhat sheltered and suitable situation as regards aspect, &c., and the pots should be well mulched or plunged in some material which will effectually exclude frost from the pots, as well as throw off cold rains, which would saturate the fresh soil, and have an injurious effect on the trees. Tanners' bark or Cocoa-nut fibre are useful for this purpose—the last the best. But in addition to this, it is necessary, during such a depression of temperature as we have been experiencing, to shake some light litter, straw, or hay over and among the branches, as, although there can be no doubt about the Peach and other fruit trees being able to withstand a very considerable amount of frost, when their wood is thoroughly ripened, a zero temperature must be admitted to be about the limit which even the best ripened wood of the Peach and Apricot can endure with impunity. Although fruit trees growing in pots or tubs are often found, under careful treatment, to continue in a healthy and fruitful condition for years, they nevertheless occasionally become decrepit and unhealthy under even the best management, and in such cases it is unwise to allow them to occupy valuable space. Under such circumstances they should be at once discarded, or planted out in the open air, where they may possibly recover; and the loss thus sustained should be made good by selecting from a reserve stock, which should be kept up by annually potting a few healthy maiden trees. Or failing this, such trees can generally be obtained from any nurseryman.

Peaches and Nectarines.—Possibly no kinds of fruit trees are better suited for orchard house culture than Peaches and Nectarines, both of which have of late been unsatisfactory out of doors, a circumstance which has doubtless caused them to become more generally grown under glass than in years gone by, either planted out in prepared borders or in pots. And certainly no kinds of fruit trees are better adapted to pot culture than the Peach and Nectarine. Some prefer pots of large dimensions, while others are equally successful with pots of much smaller size. Some place the pots upon a bed of rich soil, into which the roots are allowed to enter during the growing season and when the fruit is swelling. And whenever it is considered desirable to check over-luxuriance, this is easily effected by raising, more or less, one of the sides of the pot, thus depriving the tree of a portion of its feeding roots. Others prefer to place the pots upon a slate shelf, stone pavement, or floor of concrete, so as to quite prevent the roots leaving the pots by the bottom. But, on the other hand, encourage them as much as possible to the surface by doses of liquid manure and by rich surface-dressings, supporting the same by bands of zinc, lead, or even turf. But equally successful results can and are frequently obtained, and possibly better flavoured fruit secured, by merely using pots of medium dimensions, and for potting material employing good, sound, rich, old pasture loam, which has been laid up to mellow for a few months, and which has been further enriched by the addition of a fifth or a sixth part of well rotted manure and a few inch or half-inch bones. The pots should be carefully drained, and the roots entirely confined to them, watering freely with rain water, and in the growing season, and when the fruit is swelling using occasionally well diluted liquid manure. No doubt the best position for the Peach under glass is trained to a trellis some 15 in. or 16 in. from the roof; but as this method of training is not applicable to trees growing in pots, or, indeed, to orchard-house trees generally, it is possible that the best form in which to train is that of a pyramid, or half standard, or even as dwarf bushes; but the pyramid is undoubtedly the best, but whatever form may be desired this must be secured by careful stopping or pinching in of the young shoots during the growing season, so that very little winter pruning will be necessary during the first two or three years. The Peach and its smooth variety, the Nectarine, may justly be considered the trees *par excellence* for the orchard house, and, in addition to their value as producers of the most delicious of fruits, they are also when in bloom exceedingly ornamental. They are, however, unfortunately, very liable to the attacks of aphides, thrips, red spider, and mildew, so that, in addition to such a winter dressing as has been already recommended, or, if preferred, a solution of Gishurst Compound, about 8 oz. to a gallon of water, it will also be advisable to commence a daily system of syringing as soon as the fruit has fairly set, in order to keep the trees in a perfectly clean

and healthy condition, and should this fail to prove effectual, recourse must then be had to fumigation with Tobacco. And any appearance of mildew may be checked by the application of flowers of sulphur or Ewing's Composition. Syringing must, however, of course, be discontinued when the fruit approaches maturity.

Varieties for Succession.—The Peach and Nectarine, unlike that of the Apple and Pear, remain but a short time in good condition after ripening, and the season of such fruit produced in the open air or in unheated structures is necessarily somewhat short; therefore, as far as possible, to remedy this, and also to prevent anything like a glut of any particular variety, it is advisable to grow a considerable number of kinds whose time of ripening will necessarily extend over a considerable period. And fortunately, as it happens, there are large numbers of varieties to select from, and even these appear to be yearly increasing, although it is found to be very difficult to improve upon several well-known sorts, whose reputation has been long established. The following twenty-four varieties of the Peach may be divided into three distinct sections as regards their period of ripening, that is to say, early, medium, and late. Commencing with the early section, Early Beatrice is said to be the earliest of all. Then we have the Early Ann, Early Rivers, Early Albert, Early Admirable, Acton Scot, Dagmar, and Crawford's Early, the finest of all the yellow fleshed sorts, and one which possesses a very peculiar aroma. In the medium section we have Dr. Hogg, a hardy, fine-flavoured, and prolific kind; Royal George, a well-known and excellent variety; Grosse Mignonne, large and fine; Belle de Croix, a very large, fine, and hardy sort; Stirling Castle, a useful variety; Noblesse, a well-known first-rate kind; Lord Palmerston, a good new variety; and Prince of Wales, one of the best new sorts.

Of early Nectarines the Murrey variety is very early; also Balgowan, a large and handsome fruit; Violette Hâtive, one of the best; Violette Rouge, a fine showy variety; Hunt's Tawny, a yellow-fleshed early sort; and Lord Napier, new, very handsome, and finely flavoured. Amongst late Nectarines, Bowden is a large rich, melting kind; Downton, a fine variety; Elrue, a well known fine sort; Imperatrice, large, juicy and good; Pitmaston Orange, a first-rate yellow-fleshed kind; Rivers' Orange, fine flavoured and very productive; Prince of Wales, a fine new variety; Old White, very distinct, and during some seasons very good; Victoria, a very fine late sort; and Oldenburgh, a kind which has the property of hanging long upon the tree.

P. GRIEVE.

1, Orchard Street, Bury St. Edmunds.

WRONGLY-PLANNED FRUIT HOUSES.

I CERTAINLY fail to see that I have in any way misrepresented "J. S. W.'s" objections to the system of erecting trellises in houses crossways. He says that he named other objections, but, if I understand rightly, those related to other parts of the house about which I have nothing to say. "J. S. W." maintains that wood is not ripe unless it is brown and hard, and also infers that fruit is not ripe unless it is high coloured. Surely "J. S. W." has picked ripe Peaches devoid of colour, and, on the other hand, has seen fruit highly coloured before it is half ripe. Colour does not always mean ripeness. It means high finish and flavour in the case of fruit, but it is by no means essential to ripe wood. It is quite possible to get highly tanned wood that is far from ripe, and that is by exposing it fully to the sun and giving little air; and here, I may add, is where many gardeners who complain of unripe wood in houses make a mistake. If the house catches the sun from its rising to setting (as it does when span-roofed, and runs north and south) the wood will ripen thoroughly, even if the sun's rays do not act directly upon it, provided the house be judiciously ventilated. "J. S. W." says that the reason why Peach shoots out of doors are not so tanned as those indoors is because they are not so ripe, and directly adds that unripe wood means a poor crop and impaired health in the tree. Has "J. S. W." never seen outdoor Peach trees loaded with fine fruit, and the trees themselves pictures of health? and yet the wood, according to his idea, unripe because untanned. Again, he says, "I cannot prove that trees trained thus receive more light than those that face the sun; but, certainly, no one will dispute the fact that the light is more equalised by the cross system. To prove it place any soft-wooded plant under a Peach tree in full leaf, trained up the roof, and also place one between two trees trained crossways, and what would be the result? The former would become drawn and sickly, whilst the latter would be just the reverse.

As regards the health of trees planted thus I need say nothing, as Mr. Baines (p. 109) has proved that they will maintain their vigour

and produce heavy crops for years. Want of colour and consequently flavour is the only objection Mr. Baines mentions, which I don't think would have arisen if the houses at Cloughton Hall had been span-roofed and ran north and south, as then at the rising and setting of the sun its rays would have been directed between the trees, and when at its meridian would have shone more directly upon them. The houses mentioned in *THE GARDEN* (Vol. XVIII., p. 653) are built in this way: one of them is 21 ft. by 22 ft.; the sections are 5 ft. apart; they have been erected 12 years, and have been under the present gardener's care eight years. He speaks very highly of the system by which he annually obtains excellent crops of fine fruit and of good colour.

The Hollies, Weybridge.

G. W. PRIOR.

— I am much obliged to Mr. Prior for samples of what he considers to be properly-ripened Peach shoots (Vol. XVIII., p. 655). His sending them shows that he, like myself, is only anxious to learn the truth, and I am sure he will excuse me when I say that the shoots he has sent are remarkably bad samples, being both weak and badly matured. Our Peach shoots are thicker, much darker in the bark, harder, and far more woody, and the buds larger and harder also, and firmly seated. Mr. Prior's shoots are green and soft, and the tops, I see, have been cut off.—J. S. W.

— Trellises placed across a house are doubtless bad, as trees trained in that way cannot produce good coloured fruit, and we all know that want of colour means lack of flavour, especially in the case of Peaches and Nectarines, which require a good deal of sun, air, and light. These essentials they cannot have in any other way so well as on trellises near the glass, as there the fruit can be left at the time of thinning on the upper sides of the tree, so as to be exposed to the solar rays nearly the whole day long. Under any other mode of training this is impossible, as the sun must leave one side before it can reach the other. Rather than have trellises arranged in that way, I should prefer to grow standards or pyramids in rows at wide distances apart, as the rays of light would then strike through and amongst them, and the back wall would be available for covering just as it would with trellises running crossways; but the best form of house for standards and pyramids is a high span-roofed one with the ends running north and south. For early forcing there is nothing like a lean-to house with one set of trees within 15 in. or 18 in. of the roof; on the wall may be grown Camellias, which do remarkably well in the shade, and yield a quantity of flowers for cutting at a time when they are exceedingly valuable.—S. D.

VINES ON OPEN WALLS.

THAT good Grapes can be grown on open walls has been conclusively proved over and over again, although it is by no means rare to find the fact questioned by people who have not actually seen or tasted the produce. The only questionable part of the matter is, can we find growers now-a-days who have patience enough to wait for fruits to ripen under the tedious process of outdoor culture? They must expedite the ripening by a glass covering of some kind, and as to labour, if that is begrudged, I fear that few who attempt outdoor Vine culture will meet with much success.

Excellent crops of Grapes used to be grown on low walls not more than 4 ft. high by an amateur in Suffolk; let the season be what it might, not only had he well-ripened Sweetwater, Muscadine, and similar sorts, but Black Hamburgs equal to ordinary greenhouse-ripened fruit. The system adopted was that generally acknowledged to be the best for outdoor Vine culture, viz., taking the main shoot along the base of the wall, and at every 2 ft. running up shoots that only bear for one year, and are replaced at the winter pruning by shoots taken up midway between the two bearing ones, so that there is no old wood except the main stem at the base of the wall. These young shoots are certain to show far more bunches than the Vine can mature, and if really good Grapes are desired, disbudding, training, stopping, and thinning of both bunches and berries must be attended to just as regularly as they are under glass, for if the Vine wastes its energies in the production of useless bunches and spray-like growth, it is needless to say that outdoor Vine culture must prove a failure. In the case to which I refer the grower had made outdoor Vines a hobby for many years, and although in humble circumstances and had changed residences several times, he always managed to have his dishes of Grapes in autumn from his little cottage garden wall, equal and in some cases superior to those of many who attempted Vine culture under glass; but from their earliest budding in spring until the fruit was ripe in autumn he would go round them every evening, taking off all surplus or useless growth; therefore, the main leaves received every ray of sunshine, and only as many bunches were left on the Vine as the cultivator knew could be easily carried and swelled up to over 1 lb. each.

There is no need for any elaborate or expensive preparation of borders for Vines in the open air, for in ordinary kitchen garden

soil they will grow quite strong enough, and when swelling the crop of fruit they can be assisted with manure in a liquid form with advantage, and in hot, dry seasons the roots should be mulched. The greatest enemy to Vines in the open air is mildew, but by timely applications of sulphur this may be kept in check. By growing hardy early kinds, I feel sure that any one may ensure a crop on open walls with more certainty than in the case of any other cultivated fruit, and in the most unfavourable seasons they will, if not ripe enough for dessert, make a wine but little inferior to some of those imported from France.

J. G.

— It was a common thing in my young days for Grapes, aye, and good flavoured Grapes too, to be grown at Mitcham; they consisted of Muscadine, Sweetwater, Black Hamburg, and the old Cluster, and they were grown for wine chiefly. Our washhouse roof was much lower than that of our house; the aspect was S. S. W. On the walls of the back part were Vines, and part of one of them ran over the slated roof, and, as Mr. Douglas justly observes, Vines out-doors should be pruned—so were these; young wood was only left at pruning time, and heavy crops were the result. I can only recollect one season in which there was a failure, and that was a very wet one indeed. Many a gallon of good, wholesome Grape wine was made from these old Vines. Why, if only for the purpose of making a good, wholesome, perfectly harmless family drink, it is worth encouraging the growth of Grapes outdoors where there is a good wall or slated lean-to roof. Not only, however, were Grapes grown at my father's house, but Grape growing was a common thing, and the only reason I can assign for Vines not being grown now, is that the race of people living now do not care for home-made wines. There was one place in our village noted for its remarkable Sweetwater Grapes; they were grown by an old retired gardener, named Mason, who lived at Lower Mitcham. The Vine which produced them was trained over the front of the house, and had a stem as thick as the small of a man's arm. Mr. Mason made a hole in the casing of his bow window, introduced a branch of his Vine, and trained it round the window inside, where Grapes of 1 lb. weight would hang, fine in colour, and the best test of flavour was this, that he sold them at the price of Grapes from glasshouses. Now, this Vine had nothing but the hard Macadam road and foot-path to grow in; it used to be said that the roots had travelled under the roadway into a butcher's yard on the opposite side, but as to the truth of that I cannot say; this only I know, that magnificent crops of Grapes were grown until after Mr. Mason's death, when another man took his place who did not trouble himself with them.

My schoolmasters—two of them—grew Grapes, both Hamburg and Sweetwater, on their houses, as some of us lads with long arms well knew. At Mitcham Grove, then the residence of the grandfather of Sir John Lubbock, good outdoor Grapes were also grown on part of the walls; there was no spare room on any wall there, let the aspect be what it might; Grapes, Pears, Cherries, Gooseberries, fine late crops on north walls 10 ft. high, Peaches, &c., all grew there. The Grapes certainly had the advantage of being bagged, and glass in some shape was put over them when they were getting ripe. I can, however, point to another place at Tooting where they also did well, viz., The Rookery. When the late Mr. Robert Clarke was living my father was gardener there for many years, and the growing of Grapes out in the open air was there carried on with great success on a wall at the back of the house. The border was fenced off from a Grass drying ground. The Vines were the Black Hamburg, Muscadine, and Sweetwater. Young bearing rods were trained from the bottom each year, and the old wood cut out. Heavy crops were grown on that wall, and as soon as the bunches had done stoning, and had been thinned, some oblong span-shaped glasses having rings at the ends were hung over each bunch; air, too, passed into these glasses freely, therefore the bunches used to be well coloured and equal to ordinary greenhouse Grapes. Now, I hold that what has been done may be done again if we only pay the same attention to the matter. We do not expect to have Grapes grown out of doors equal to hothouse Grapes, but it is well to tell cottagers that where there is a wall or a roof of easy access they may grow their Grapes, and eat them literally "sitting under their own Vine;" they may also make good, sound, wholesome, refreshing wine from their Grapes. Why, at Leamington and other midland towns I have seen hundreds of pounds of Grapes brought in for sale, good edible fruit, although as I have before said not like Grapes from a Vinery. A friend has just told me that in a village on the borders of Gloucestershire, a few miles out of Stratford-on-Avon, very fine Grapes are grown on a farmhouse, and they ripen well in most seasons.

D. J. NORTHWOOD.

Boxes for Winter Apples.—The following mode of packing winter Apples was written by an orchardist of Prattsburg, N. Y., and published in the *Husbandman*. The Apples are encased in tight

packages, and packed in barrels without the labour of heading and hooping; and the piles of boxes may be taken down at any time to see if any decay has begun, by placing the removed boxes successively in a new pile. First provide a stock of boxes, which, if cared for, will serve for a lifetime. Mine are 2 ft. 4 in. long, the stuff for sides and ends cut 11 in. wide, and for bottoms 12 in. wide, all $\frac{1}{2}$ -in. light Pine, except the end boards, which are $\frac{3}{4}$ in. thick. Nailed on each end is a 2-in. cleat, also of $\frac{1}{2}$ -in. stuff, raised $\frac{1}{4}$ in. above the top of the box, which serves to hold upon when carrying, and also to keep the boxes in place when nested together. The boxes are mechanically alike, and the fruit in them is as effectually protected from atmospheric influence as it would be headed up in barrels. Such boxes hold a large bushel, and weigh perhaps twice as much as a five-peck basket. They are filled in the orchard, placed one upon another in the waggon till a load is made up, and put in the cellar without emptying from baskets or bags, or bruising in other ways, and piled in tiers the whole length, if you desire to utilise all the room possible, the longest keeping fruit being placed in a position to be last reached. In that condition they are left untouched till wanted, the small quantity in each box not generating moisture to cause decay, and when wanted are in shape to be easily and pleasantly reached. Labels may be attached to the exposed end of each box if desired. Men who have given this method years of trial say that their fruit keeps much better than when put in a position to pick over; that more fruit can be stored in a given amount of cellar room than in any other way; that such boxes supply a long-felt want, and will certainly be rated by anybody who uses them a few times as worth much more than they cost, which in my own case was a little over twenty cents each. But cheaper material than clear soft Pine may be used, but at the expense, probably, of lightness.

Kempsey Alicante Grape.—In reply to "Subscriber" (p. 109) allow me to say that Kempsey Alicante, a local name for Black Morocco, the male parent of Madresfield Court Muscat, is a vigorous grower, with stout woolly leaves, shows a profusion of fine bunches, and is, when well done, one of our finest winter Grapes. It does best in an inside border, where it enjoys liberal feeding up to the time the berries begin to change colour, when watering should be discontinued and the atmosphere of the house should be kept dry, warm, and airy, otherwise the berries will begin to crack round the insertion of the foot-stalk. A good bunch will weigh three to four pounds, berries very large, oval, and extremely handsome, but it is a shy setter, hence the reason it is so little grown. If "Subscriber" will examine the bunches when in flower, he will find every stigma closed with a glutinous substance, which must be removed with a camel's-hair brush on every fine day prior to fertilisation with Ham-burgh or Muscat pollen; he will then find it set as freely as any ordinary kind.—W. COLEMAN.

PATENT RECORD.

J. H. JOHNSON, London: Sweeping machines.—This machine appears to resemble a lawn mower with the spiral knives replaced by a brush shaft carrying "two sets of, say, three brushes each, the brushes of one set extending from a point near one end of the shaft to a point at or beyond the centre of the same, and the brushes of one set coinciding with the spaces between the brushes of the other set." The machine has a box to contain the material swept up (leaves, grass, &c.), and a device for tilting and emptying it when required.

H. H. LAKE, London.—Mowing or reaping machine.

J. P. WATERSOHN, Denman Street, Surrey: Construction and pointing concrete buildings, &c.—(1) A double row of vertical standards of steel or T, I, or L-iron, are arranged at intervals, and against their inner surfaces boards are temporarily placed. The space between the boards is then filled with concrete to form a wall. (2) To point concrete surfaces and brickwork a frame or stencil formed to represent joints of brickwork is used, the pointing material being rubbed over the frame by a brush or otherwise.

W. H. & D. THOMPSON, Leeds.—Glazing vertical and sloping surfaces for horticultural and railway purposes, &c.

W. G. SMITH, Bury St. Edmunds, Suffolk.—Glazing horticultural buildings.

J. DEVRANCE, London.—Glazing for roofs.

A. K. IRVINE, Glasgow: Apparatus for heating water, &c.—The principal features of novelty consist (1) in the use of a series of diaphragms over which water flows in succession in one direction, whilst combustion gases pass in the opposite direction between the diaphragms and immediately over the surface of the water, a jet of water or steam causing a sufficient current in the heating gases; (2) an automatic regulating valve; (3) the method of heating pipes externally by gas flames or otherwise for producing steam or vapour to form jets; (4) the steam being led away, whilst the water is supplied

through porous materials, which regulate its flow, whilst exerting capillary action on it. The casing of the apparatus is made of thin copper.

M. E. SAVIGNY & A. C. COLLINEAU, Paris: Vegetable colouring substance.—The name of the new substance is *Eriocene*. It is prepared from the wood of the common Heather or of the Poplar tree by treatment with a hot solution of alum, whereby a liquid of a light and bright yellow colour is obtained which deposits a greenish resin. The liquid after having been separated from the resin by filtration becomes oxidised and obtains a fine gold colour. The following proportions are used: Alum 1 part: wood 10 parts; water 30 parts; and a great variety of tints can be obtained by suitably combining the extract with various dyes and mordants.

P. M. JUSTICE, London.—Preparation of vegetable fibres for upholstery, &c., J. G. Stevens, Jersey City, U.S.A.

N. TALARD, Paris.—Method and apparatus for emptying cesspools and conveying away the contents thereof.

T. J. WALL, Southampton, Hants.—Apparatus employed in the treatment of the Hop plant, to cure or stop the spread of "mould" and other diseases thereon.

F. J. BOLTON & J. A. WANKLYN, London.—Manufacture of artificial manures and ammoniacal products.

H. DE MORNAY, London.—Digging machines.

L. A. GROTH, London.—Meter for water and other fluids. C. Berhaut and H. Ducenne, Liege, Belgium.

T. FLETCHER, Warrington.—Gas burners for heating purposes.

G. M. EDWARDS, London.—Tie and core metal for combination with and combining same with plastic materials, concrete, and enamels, for use in the construction of cylinders, pipes, reservoirs, and cisterns for holding and conveying water, &c.

J. T. DANN, Brixton.—Construction and use of apparatus for rapidly producing and efficiently maintaining high degrees of heat for scientific and industrial purposes.

C. BURGESS, Birmingham.—Water tap for prevention of waste or possibility of freezing.

J. TURNPENNY, Leeds.—Means or apparatus for consuming smoke and economising fuel.

J. LIST, Carisbrooke, I.W.—Wire fences.

J. DUKE, Totness, Devon.—Manufacture of soluble silicates, applicable to production of manures.

W. R. LAKE, London.—Pumps and machinery, or apparatus for driving or operating same. P. E. Jay, New York, U.S.A.

P. H. F. ENGEL, Hamburg: Sliding roofs for hothouses, &c.—The construction of sliding roofs having one or more sets of glazed frames, which can be folded each underneath the adjacent frame of the corresponding set. The uppermost frame of each set is attached to the structure and supports the roofing.

M. STOBBS, London.—Apparatus for adjusting springs for doors, gates, windows, ventilators, &c.

T. PERKINS, Hitchin, Hertford, and S. HANDSCOMBE, Melbourne, Cambridge.—Apparatus for separating grain, seeds, and other vegetables, or mineral substances.

J. H. JOHNSON, London.—Apparatus for grinding or reducing grits, grains, seeds.—*Engineering*.

LATE NOTES AND QUESTIONS.

Reason for Propagating Tree Carnations.—Kindly say which is the best season for striking cuttings of the "Tree or perpetual flowering Carnations," and where those kinds mentioned in THE GARDEN (p. 63) can be procured?—E. B. [February and March is a good time to strike cuttings of perpetual flowering Carnations, to flower next autumn and during the winter. The small side growths strike freely in a forcing house, but a square of glass should be placed over them to prevent excessive evaporation. They will also strike freely in the shady part of a Cucumber frame. Any of the principal florists can supply what you require.—J. DOUGLAS.]

Wall Plants for a Verandah.—I have a verandah facing south with gravel floor and tile roof. Will you kindly tell me what shrubs would grow against the wall of the house under the verandah? Of course they would be shaded continually, as the roof of the verandah extends 6 ft. from the house. Would the wall plants be benefited by a few of the tiles being made of glass?—F. C. B. [Doubtless the substitution of glass for tiles would benefit any plants beneath the roof. Try one or two Camellias, also Magnolia grandiflora, Ceanothus azureus, Myrtles, Choisya ternata, Escallonia macrantha, Stauntonia hexaphylla, Jasminum revolutum, Olea fragrans, golden or silver-leaved Euonymus, Veronica Andersoni, Coprosma Baueriana variegata.]

Nurseryman and Florist.—What is the exact distinction between a nurseryman and a florist?—H. [The term florist was at one time confined to dealers in Auriculas, Carnations, Cinerarias, Ficoetes, Pinks, Pansies, Pelargoniums, Tulips, Dahlias, Hollyhocks, Polyanthus, Anemones, Ranunculuses, and similar plants, but now it includes growers for market, floral decorators, and others. Nurserymen, on the other hand, have a much wider field of operation, and not only grow and sell most of the flowers just named, but also ornamental trees and shrubs, fruit trees, Roses, &c.; in short, the distinction between the two is fast becoming obsolete.]

What Aspect Suits Lilies?—Would a due south Vine border suit them from which the Vines have been taken? It is very hot in summer.—T. P. [In such a position Lilies would probably not succeed so well as in one partially shaded. See remarks on this subject in another column and in previous numbers.—G.]

Tulip Tree.—Is this propagated by means of cuttings? or if not, in what other way?—FRANCONIA. [It is generally raised from seed, but it may be propagated by layers, budding, grafting, or inarching.]

Christmas Roses.—What is the best time for dividing and moving Christmas Roses, or whether they flower better for being left undisturbed in large clumps?—F. S. C. [They may be moved in spring, but they do best undisturbed.—G.]

Laurel Hedge.—What kind of Laurel is the best for a high hedge?—F. C. B. [The Colchican; but for a high evergreen hedge nothing beats Holly.—M.]

Hippeastrums.—E. B., Florence.—Try Messrs. Veitch, King's Road, Chelsea, or Messrs. E. G. Henderson, Pine-apple Place, Maida Vale.

Books.—Mrs. B.—The best book at present on indoor plants is Mr. Williams' "Choice Stove and Greenhouse Plants."

Paraffined Seeds.—Will paraffin applied to small garden seeds—either flower or vegetable—before sowing injure them? I believe that it is used as a preventive against mice and birds for Peas and Beans. I have used red lead, but it is objectionable.—H.

Tar and Pitch Running.—Is there anything which will prevent tar and pitch from running on a roof during hot weather? I have been told that a few lumps of lime put into the pot whilst the tar is boiling will prevent it from running.—T. P.

Bulbs after Flowering.—Will somebody kindly inform me the best way to treat bulbs such as Hyacinths, Narcissi, &c., when they have finished flowering, both those that have been grown in pots and those in glasses?—H. P. T.

Gun License.—Can an employer give his gardener permission to use a gun, to shoot or frighten birds in his garden without taking out a gun license for the gardener?—W. K.

Pampas Grass.—Can anyone tell me how to preserve the plumes of this Grass? I have often tried, but have always failed.—J. C.

NOTES OF THE WEEK.

Seedling Lachenalias.—I send for your inspection my seedling Lachenalia and its two parents. My impression last year was correct about its distinctness from aurea; the floral committee pooh-poohed it as only aurea, and I began to think my impression of the colour of aurea might possibly be a little indistinct, though I appreciate colours pretty well, and can keep them in my mind's eye as a rule. I think you will agree with me that the two plants are quite distinct; I may be a little blinded in favour of my own bantling, but in my estimation my plant is the more showy of the two, and it is a far more vigorous grower, and will be as free as its female parent luteola, so that it will soon become common and everybody's plant. We have had a terrible time to pass through lately, but I managed to keep the frost out of my little house, though I had to keep it warmer than I wished to be on the safe side; this accounts for my Lachenalias being so early. Freesia refracta alba is now very beautiful, and of my dozen or so of Orchids I have Masdevallia ignea, Odontoglossum Rossi, and O. cordatum very nicely in bloom, with Pescatorei and luteo-purpureum coming on; these plants do very well in an ordinary greenhouse temperature; nothing can look healthier than mine do. I should have said that when fully blown L. Nelsoni loses both the green and red tints, and becomes an uniform pale lemon.—J. G. NELSON, Aldborough Rectory, Norwich. [Beautiful things, singular in colour and form, and among the best to brighten the greenhouse at this season. Your seedling is very different from aurea in colour, being a pale lemon, while the other is a rich orange.]

Showy Succulent Plants.—The cooler portion of the Cactus house at Kew is now quite gay with numerous plants in flower of two or three species of Cytledon which are nearly allied to and much resemble the common Echeveria used so much in summer gardening. The showiest kinds are C. fulgens, the flower-stems of which rise some 18 in. high, and are thickly furnished with wax-like blossoms of a bright orange-red hue, forming a fine contrast to the white glaucousness with which the thick fleshy leaves, and in fact the whole plant, is covered; C. atropurpurea, a sort which differs from the last in having dark purplish-red leaves and deeper tinted flowers; and C. gibbiflora, a species which differs still less markedly from the first mentioned kind. These showy succulents are excellent for cultivating in a greenhouse, and they possess the additional advantage of flourishing in an atmosphere too dry for most other classes of plants.

Hardy Heaths.—I see in THE GARDEN (p. 121) that "Hibernian" thinks that Erica melanthera is as hardy as Erica codonodes. I thought so for some years, but have been disappointed; this you will see by specimens inclosed. Twenty degrees of frost has killed Erica melanthera, although in a less exposed place than Erica codonodes; the last is still in flower, as if there had been no frost or snow.—J. T. BOSCAWEN, Lamorran, Probos. [The specimens sent of E. codonodes, a lovely little white-flowered Heath, were fresh and beautiful both in flowers and foliage, while those of E. melanthera appeared to be greatly injured; in fact, almost killed.]

Seedling Amaryllis.—Mr. Christison, Bromley Common, sends us flowers of a remarkably fine winter-flowering Amaryllis, with intensely deep crimson flowers overlaid with a velvety lustre, and dashed here and there with pale streaks, similar to the variety called Prince Teck. The flowers, which are of medium size, though finely formed, have firm, broad petals. Our corres-

pondent presumes that it is a cross between A. reticulata and Vallota purpurea, and if so, the leaves, which were, however, not sent to us, ought to indicate the hybrid character by the medial rib being less marked than in A. reticulata. Whatever its origin may be, it is a first-rate winter-blooming variety, and one that ought to be grown largely, especially for cut flowers.

The Saw fly Ophrys (O. tenthredinifera).—So seldom do we meet with the singular and interesting terrestrial Orchids of South Europe in cultivation, much less in flower, that a plant of it now in flower in the house devoted to Cape plants at Kew is invested with special interest. It is not showy as regards colour—not so much so even as our native Bee Orchis, O. apifera, but the form of the blossom is peculiar, and strikingly suggestive of the form of the saw-fly by which name it is popularly known. The habit of growth, foliage, and manner of flowering are much like those of the Bee Orchis. The lip of the flower is pale rose with a heavy blotch of tawny greenish hue, and the sepals are likewise pale green. It is a matter of regret that these Ophrys, which more than all Orchids mimic as it were insect life, should be so seldom cultivated, for though, as we well know, they require skilful treatment and great care, they well repay any extra attention bestowed on them by their singular flowers.

Winter Heliotrope (Tussilago fragrans) in a Fernery.—Much has been written for and against this plant—the former on account of its delicious perfume, the latter because of its propensity for over-running its neighbours. No one disputes that it is a welcome flower in midwinter either in the open air or elsewhere. We never saw it to better advantage than a few days since, when we found it nestling among the fronds of Ferns in a naturally planted Fernery under glass at Messrs. Veitch & Son's nursery at Chelsea; its pinkish-white flowers, though in themselves rather inconspicuous, were numerous, and seemed to enliven the aspect of the Fernery on a dull day, but the perfume even eclipsed that which pervaded the adjoining Orchid house. If a block or stem is set apart for it and some of the strong-growing Ferns there is no fear of its intruding on other occupants.

Testudinaria sylvatica.—This is another of those singular South African plants that have a prodigious root-stock, woody, and deeply cracked, like the shell of a tortoise. In general appearance it does not differ greatly from the common Elephant's-foot or Hottentot's-bread (T. elephantipes). The twining, slender stems, rising from the root-stock, are furnished with bluntly triangular leaves and short racemes of tiny, brownish flowers, which, albeit, have an elegant appearance. A fine old plant of it is now in flower in the Cactus house at Kew.

Imported Plumes of Pampas Grass.—The cultivation of Pampas Grass, now so much used for decorative purposes, has become quite a profitable industry in Southern California. Three quarters of an acre planted in Pampas Grass yielded, at 2½ cents per head, 500 dols. Another grower sold all he could raise at 7½ cents per head. Last year 10,000 heads or plumes of this Grass were sold from that region.—Journal of Applied Science.

Good Winter Begonias.—Among the numerous Begonias now in flower in the house devoted chiefly to them at Kew the following seemed to be the best, viz., B. glaucophylla splendens, a kind having a somewhat scanty habit, medium sized leaves of a dull sea green, and loose clusters of bright red flowers produced plentifully at all parts of the stems, therefore on this account excellent for supplying a good crop of cut blooms. B. Berkeleyi, a hybrid, has very elegant clusters of small white flowers on long stalks; and another, a cross between B. hydrocotylifolia and B. manicata, combines with pretty pink flowers rich metallic bronzy foliage; B. Bercheri, too, has similar good qualities.

Prize Cups.—In reference to this subject, which has recently been discussed in THE GARDEN, Messrs. Sutton & Sons, Reading, inform us that the prizes which they offer may be taken by the winners in either money or plate, whichever may be preferred.

The Thaw has shown us less damage than I expected. In spite of 23° of frost some bushes of that hardy Veronica Blue Gem have escaped, and Choisyaternata, Dracæna Veitchi, Raphiolepis ovata, and the small-leaved Myrtle seem entirely uninjured as yet by the ordeal they have gone through. Many things, however, have suffered terribly.—E. H. W., Scarborough.

WE have much pleasure in noting that our friend and occasional contributor, Mr. Peter Inghald, has recently been the recipient of quite a shower of scientific honours, including, besides Fellowships in both the Linnean and Zoological Societies, the honorary dignity of a life Fellowship in the Entomological Society, the newly-appointed president of which had received his early scientific training at the hands of Mr. Inghald.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

GARDEN THOUGHTS.

Præterunt nives, redeunt jam gramina campis, and though we may not hope that the cruel frosts or sullen rains are over, we may form some idea as to the effect produced by the severities, which in my own garden have brought the thermometer down to zero, and have been everywhere so bitter and continuous. Even at sunny Nice, as I hear from a friend, the weather since Christmas has been intensely cold, the great Magnolias have been clothed with snow, ice has lost its charms as a phenomenon, and, shivering within the thin walls of hotels and villas, our English brothers and sisters have sighed for the curtains and the carpets and the warm fires of home.

I suppose that since the snow disappeared we gardeners have each made his or her "Tour round my Garden" very anxiously, like a general after a great battle rides by the ranks. By me, this roll-call and inspection has been followed by a great sigh of relief and thankfulness, and as I "was born in a wale, and live in a wale, and must take the consikences of sich a sitivation" by enduring some 10° more of frost than those of my horticultural brethren, I joyfully infer that they are yet more surprised and pleased than I am to see how little harm has been done so far as we can discern at present. There is damage, but no death. The list of wounded is considerable, but the list of killed is 0. The Pampas, the Tritoma, the Laurels, and Aucuba have a dejected, melancholy look, and the Vinca has changed some of its gold and silver for copper, but, with the exception of a few buds on the standard Briers, as yet I see no deaths. Last winter, my Hollies, Aucubas, Laurels, and even the Ivy on my walls were black and lifeless. But when *this* came the wood was well ripened, the frost has been a dry frost, and we have had that gracious covering of snow which ever reminds us of the beautiful words, "He giveth snow like wool, and scattereth the hoar frost like ashes." Because the snow is not merely like wool in its fleecy texture and delicate whiteness, but because it serves, in spite of its own coldness, as a great coverlet to keep the earth sheltered and warm from the keen frost and bitter blasts of winter, lulling it, as it were, in healthful and restful sleep, so that the seeds and herbage are saved from blight, and suffered to grow beneath the fall.

The alpine plants, as a matter of course, seem refreshed and strengthened by their cold bath, and in countless green points piercing our borders, and red buds swelling on our flowering shrubs, we note the first "delicious trouble of the spring." My chief anxiety, I need hardly say, has been the Rose. This time last year I received, being abroad, information from my gardener that all my standard Rose trees and all my standard Briers, budded and unbudded, were dead or dying. I wrote back an order that they should be replaced from the thick hedgerows, which had not been injured by the frost. I found in consequence, on my return home, 2000 stocks growing beautifully, and I must confess that when I saw them safely budded I offered to myself unmerited compliments, like the trustee in one of Wilkie Collins's stories, who entered in his accounts from time to time "self-presented testimonial, £10," and thought how clever I had been in filling up the vacancies, and so saving a large portion of my

Rose garden from twelve months of desolation. Had I known what was coming, I should have soon changed my note, as the hawk remarked of the robin redbreast a-singing round the corner, and when the thermometer marked 32° of frost, my conceit fell with the quicksilver. Very little harm has so far been done. The buds are, with few exceptions, not only alive, but they have that roseate tint which denotes both in hens and horticulture, on the comb of a pullet as on the lateral of a plant, the reproductive power.

But why, it will be asked, do you write this painful apprehension? why, year after year, do you run this risk? You are an old Rosarian, you have fought a thirty years' war with our terrible English winters, and with our far more terrible English springs. Every time you place a bud in your standard Briers you know that there is a large probability that it will be more or less damaged in its first growth, and some possibility that it will be annihilated. By inserting it in a Brier struck from a cutting, or in a Brier grown from seed, on a level with the ground, so that you can protect it through the winter with soil or mulching, or both, you know that it is safe; you know that all dwarf Rose plants budded, grafted, or struck from cuttings may be made frost-proof by a little straw-manure, and yet you persist year after year in exposing these tender germs, these innocent little babes in the wood, to danger, if not to destruction. I call upon my veteran brothers, Queen Rosa's old body-guard, "the greys" (whether Scotch or English), to support me in repelling this charge. I subpoena and summon into court those ancient Buddhists who live on soil congenial to the Brier, and I call upon them to bear witness that, after a moderate winter and a genial spring, they have seen such Roses upon those budded standards as would make an old man young. And though their evidence may be received with derisive cheers, and the mere suggestion of a favourable season may evoke suspicions of lunacy, and though they are constrained to confess that this fruition of beauty is given to them but once or twice in a decade, they will tell you that the pleasures both of memory and hope amply condone all their disappointments, and that so long as they continue to "bud" Roses they must reserve a little space for the uncertain and unsightly standard or half-standard Brier, even though their vision of lovely "maidens" shall again be little more than "a dream of fair women;" it is no baseless fabric; it is founded on realities, and may be realised again.

I fear that in the nurseries, where mulching would be too extensive and expensive, there will be again much loss in our midland and northern shires; indeed, I have heard already that my friend Mr. Frettingham, who grows Roses very largely and successfully at Beeston, near Nottingham, has suffered severely, the thermometer having marked 2° below zero. But protected Rose plants are so far safe, and though the upper growth of "the Teas" is lifeless, there is an abundance of recuperative power underneath that long white straw. This time last year a brother Rosarian, who came here "to see how Canon Hole protected his Teas," went away with the idea that "they were all dead," but they have bloomed in sweet luxuriance through the summer and the autumn; and I earnestly entreat all Rose growers who are still timid as to the outdoor cultivation of these exquisite flowers no longer to deprive themselves of that sure success which follows a liberal mulching of Tea-scented Roses, budded low on the seedling Brier or on the Brier struck from cuttings. If I only grew twenty varieties of the Rose I should certainly include half-a-dozen Teas, and these would be Anna Ollivier, Catherine Mermet, Niphetos, Rubens, Souvenir d'un Ami, and Souvenir

d'Elise. But I said my say, and told all I knew on this subject, in *THE GARDEN* just two years ago.

As to mural Rose trees, the Banksian and the Maréchal Niel, which last year were cut down to their mulchings, but subsequently made a strong altitude of growth, have again been so seriously wounded that amputation will be the only cure. Mats might have saved them, but they are unbecoming to a mansion or its near surroundings, as diachylon or sticking-plaster to the human countenance, and we have plenty of ornamental creepers, including such Roses as the Ayrshire, Sempervirens, Hybrid Chinas, and Hybrid Cheshunt, which will survive our winters. Having grown the grandest blooms of Maréchal Niel which I ever saw upon a wall with an eastward aspect, I shall continue to place a plant or two in a similar position, hoping against hope, but the only reliable position is under glass. And where should we find a candidate to take precedence of Le Maréchal if all the beautiful plants of the world were asking admission at the greenhouse door? It is true that we have not as yet discovered a method of cultivation which will prevent the plant from a gradual deterioration and decay, but surely the results abundantly repay the trouble of removal and renewal in a yearly abundance of these golden Roses.

Indeed, the culture of Roses under glass, much as it has increased of late, is not nearly so extensive as it should be (and as I venture to prophesy it will be) when we consider the facility, the pleasure, and the profit. I have just visited the home of those lovely Roses to which I have before referred in *THE GARDEN* (Jan. 8, 1881), and which were sent to me on Christmas Eve. The trees are growing on the back wall of two Vineries, and growing so healthfully, that in one of the houses I saw a Safrano 13 ft., and a Souvenir d'un Ami 14 ft. in height. They yield Roses for nine months in the year. Indeed, I may safely say that as they do not all rest simultaneously, there is no period of the year in which they are without a Rose. Many of them were full of buds when I saw them on the 14th inst. The Vines were such as you would expect to see from a favourite pupil of William Thomson—great, clean chocolate canes, muscular peeled, like an athlete trained to win. Tell me of any other combination in horticulture, any union of things pleasant to the eye and good for food, more lovely or more lucrative than this. In a commercial point of view there may be a question whether the Grapes should be early or late, considerations as to cost of fuel, influence of shade from the Vine leaves, supply and demand in spring and winter, but in either case, under careful culture, the profits would be large. Amateurs not studying the market, and pursuing the ordinary method of cultivating their Vines, will find sure delight in their continuous Roses. These should be all of the Tea-scented family, on account of their perpetual efflorescence, and when there is plenty of room, Maréchal Niel should be included, climbing *Devoniensis*, Cheshunt Hybrid, and Fortune's Yellow. The less robust varieties should be plunged in pots, liberally manured, and observantly watered.

If the reader is growing weary of Roses, I wish I could refresh him as I was refreshed not far from the place where they grow with a slice of the "Lady Beatrice Lambton" Pine-apple, a fine fruit, sometimes reaching 10 lb. in weight, raised, as its name suggests, in the gardens of the Earl of Durham, under the auspices of Mr. Hunter, and having that fresh, brisk, acid flavour which, in conjunction with its own sweetness and a little powdered sugar, is so delicious to the taste. I know not whether it has been submitted to the

palates of the fruit committee of the R.H.S., but I privately awarded it a first-class certificate.

Or that I might show him, if he has not seen it, a flower which is now on my writing table, resting its long, roseate, wax-like tubes in exquisite contrast upon its dark green foliage, a *Rhododendron*, too meekly named "Princess Royal," for she must surely be queen of her class, or some tufts of *Spiræa palmata* intermixed with pale yellow Ghent Azaleas. The snow is again falling (Feb. 7) and the wind roars without, but the brightness of these and other flowers, with the sweet perfume from a posy of Czar Violets (all the more precious in my eyes, as reminding me in their colour of Oxford Blue) make spring and summer within. Truly the happiness which we have from our gardens seems to increase as we grow older and as other sources of recreation lose their power. Does our gratitude develop with our joy? S. R. H.

COLOUR AND BEDDING PLANTS.

I AM very much obliged to "E. H. W." for his very interesting description of tropical vegetation and its beauty. In considering Mr. Wallace's observations and those of others, I felt myself some doubts—thought it could not be possible that the many glorious things we know of, from the Passion flower to Acacias, should not, under the many varying conditions tropical and inter-tropical climates afford, have here and there, aspects of surpassing beauty. I never had the happiness of seeing such scenes myself, only what might be called warm temperate climes, but in every such clime I had the pleasure of seeing there were aspects of vegetation, for those who looked for them, which compensated one for others more familiar to us. When one thinks how much one may travel in this and other countries without seeing the really beautiful aspects of vegetation, it is no wonder that the very much less known Tropics should not have their finest pictures of vegetation little known to us. Thousands of people pass over the Alps every year, but have no idea of the beauty to be seen there before the meadows are grazed down in spring. So, again, how few love the fairest aspects of vegetation in our own country. A good many are supposed to study British botany, but often when I come upon a scene of surpassingly beautiful wild plant life in these islands I do not think I could, with a telescope, have seen any other mortal in the same field of view. Therefore, the probability is we know almost nothing about the beauty of the Tropics as regards plants. Mr. Burbidge backs up Mr. Wallace, but do not some of us remember a passage in Mr. Darwin's voyage round the world in which he tells of the, to him, unmatched beauty of the Brazilian forest? However, let us come home again, and talk of things we have seen and know.

I am quite willing to grant "E. H. W." his array of bright colour from bedding plants if he desires it, but not without protest allow him to say that this is the only way to get bright and glorious colour in a garden. There are many other ways and many other things well fitted for a lawn besides these. Hardy flowers afford quite as fine colour as anything else; their sole defect in the eyes of those who want the lawn stereotyped is their merit to any person who would like to see the colour varying on the lawn, or on the little vistas which in well laid out places are often seen from the lawn. It is the higher and more artistic view of a garden that it vary with the seasons rather than that it should be stereotyped for one long season. Nobody can desire more colour or finer colour than a healthy group or several of the Flame flowers (*Tritomas*) will give one in September or October. Three or five bold tufts of these, judiciously placed

in a graceful garden and with trees around, will light up the place with fine colour. I claim that that colour in the autumn only is better and more precious to me for a flower garden than if it remained throughout the whole year; it marks the season and gives us a new aspect of vegetation.

Last year I remember seeing a very handsome isolated bed of Lilies in Mr. Nethercott's garden at Moulton Grange; the bed was a large oval one in a little glade of Grass between two belts of shrubbery, and it was filled with the larger forms of Tiger Lily in bloom, the bed being a picture of splendid colour and stately form. There was nothing very near it in the way of other flowers, but it lighted up the whole neighbourhood with glorious colour, and was seen at considerable distances through the trees and little glades as an example of noble colour. These are two types of autumn flowers. No one can say they are not fitted for a lawn, because they are absolutely without rival for the lawn, inasmuch as their colour is richer and finer in its way than any of the small plants usually put in geometrical beds, and their form is fine, too, as well as their colour. And as these tell us of colour from the autumn garden, so there are others that tell us of great beauty of colour from the spring garden or the early summer garden. There has been a colony for many years of herbaceous Pæonies at Arundel, which give splendid colour in their season, and in a large place when they go out of flower they are not in the way; indeed, I believe at Arundel they are succeeded by Dahlias planted between. At Highclere, on the lawn, a fine effect is that of the tree Pæony, which happens to grow well on the hill. Consider for a moment the beautiful forms of herbaceous Pæonies such as were figured in *THE GARDEN* a short time ago, and say if any man with the slightest intelligence could not make a bright and glorious islet of colour of these on any lawn. I do not say in what is called the parterre. If he commits himself to a geometrical pattern which has to be laid out in summer, even geometrically as regards the height of the subjects in it, he can do little with it; but in any open lawn this thing can be done, and done nobly. I am now talking of actual things, and not at all of the ideal flower garden, as it is called; and omitting the splendid stores of hardy plants that are now gradually accumulating in our gardens, my contention is that all noble colour is with hardy flowers, if we know how to use it. Look at Irids, seldom grown well. They fall into groups, all good, Japanese, German, bulbous, early; and what varied colour, what inimitable hues, to which those of Orchids are secondary, and all hardy as Docks.

I do not wish to go through the catalogue of good material, and with a considerable reserve I am sorry to differ totally with "E. H. W." about the common shrubbery being the home for these. To have the finer hardy flowers well grown they must not be in the shrubbery at all, because in it they are starved and overcrowded. The type of shrubbery which we must all desire will have places for a certain number of hardy plants and bulbs which will occupy the space between the shrubs. The common shrubbery is the grave of all the fine plants that are put in it here and there. One survives and fights its way, but it is quite the exception, even in places where there are good collections. If we grow hardy plants for colour we should grow them alone or in connection with other subjects which grow well with them, and show well with them, so to say, the same as the Rhododendrons and Lilies at Mr. MacIntosh's garden at Weybridge. That may be mentioned as an example of splendid colour, of colour utterly unexampled by what is supposed to give us the best or the only good colour. The hole-and-corner notion, "pretty," "interesting," "curious," is only applicable to a certain number of hardy flowers.

This idea arose from the presence of a few kinds badly selected, badly grown, and dotted over the ground with showy labels often attached to each—a kind of unwholesome botanical soup. I repeat it, for all noble colour and all means of adorning the true English flower garden we must eventually go to hardy flowers mainly. J. H.

TO OUR READERS.

WHEN some short time ago the experiment was tried of giving *THE GARDEN* to the public at such a price as is usual for similar class journals with few or no illustrations, and without any coloured plate, fears of the change were entertained by our friends, who thought the experiment a very doubtful one. But we had no doubt that such a course of action would meet with the result we expected, and are now pleased to say that within the short time which has elapsed since the change was made, *an increase of two thousand five hundred copies in the weekly sales of the paper has taken place.* Few but those who know how little the circulation of class papers is affected by all minor efforts, or even the most expensive advertising, can appreciate the significance of this result. Therefore the bold sacrifices we had to make at first are already to some extent repaid. It will be remembered that at the time of changing the price the pages were increased to forty, and the engravings increased in number, all changes adding greatly to the cost of the journal. We state these facts to our readers because we think we may claim their interest in our endeavours to leave nothing undone to make *THE GARDEN* the most complete and practical journal of its kind.

THE KITCHEN GARDEN.

PRIZES FOR THE IMPROVEMENT OF ASPARAGUS CULTURE.

WITH a view to improving the culture of Asparagus throughout the United Kingdom, it is proposed to give a series of annual prizes, extending over a period of seven years. These prizes will be given in London, Dublin, Edinburgh, and the north, south, and west of England in different years. The first exhibition will be held in the south-eastern counties and in Kent, at Tunbridge Wells, in the horticultural tent of the exhibition of the Bath and West of England Agricultural Society, which opens on the 6th day of June, 1881.

The following prizes are offered for the first year's exhibition, and are open to growers in any part of the United Kingdom.

Prizes for Gardeners in Private Places.

For the best bundle of Asparagus grown by the exhibitor: 1st prize, £4; 2nd, £2 10s.; 3rd, £1 10s.; 4th, £1. The bundle of Asparagus is to consist of sixty heads. The prizes will be given to the largest Asparagus, provided it be in all other respects unobjectionable. Prizes will not be given where, in the opinion of the judge, there is no merit. The Asparagus must be free of earth, and the bundles will be opened by the judges in all cases where they think it well to do so. No imperfect or "double" heads will count.

Prizes for Amateurs not Employing any Regular Gardener.

For the best fifty heads, £2 10s.; second prize, £1 10s. third prize, 15s. Grown by the exhibitor.

Prizes for Cottagers.

For the best twenty-five heads grown by the exhibitor, £1 10s.; 2nd, £1; 3rd, 10s.; 4th, 5s.

Prizes for Market Growers.

For the market grower who shall exhibit the best three bundles, each containing one hundred heads, £5 5s. This prize is offered by the Bath and West of England Society.

For the market grower in the county of Kent who shall exhibit the two best bundles of Asparagus, each containing one hundred heads: 1st prize, £3 3s.; 2nd, £2 2s. These prizes are offered by Mr. Samuel Spalding.

Essential Points in the Production of Good Asparagus.

The object of these prizes is the improvement of Asparagus culture in private gardens by the adoption of a much simpler and less expensive system than that now in use; also the home supply of our markets, which at the present time are so largely supplied with foreign-grown Asparagus. Although the details of the system of growing good Asparagus require some little space to describe on paper, the essential differences between that and the system commonly employed in England are so very clear that they may be shortly stated. Each plant is treated as an individual—as a vigorous subject requiring much space in which to grow, if strong growth and strong shoots are desired. Long experience has taught cultivators that a smaller space than 4 ft. apart will not suffice to give the very best result. At first sight people in this country might suppose that this means a waste of ground, but it really is not so. At first, when the plantation is young, waste of ground is avoided by taking a light crop off between the lines—say one of Kidney Beans or of early Potatoes; but after a good year's growth, and when the Asparagus gets strong, its roots really occupy the whole space, and the result is so much more satisfactory than in the common way that the ground affords a better and more satisfactory return. There are two principal ways of growing this crop—one, devoting a certain portion of ground to it, as usual with us; the other alternating plants between Vines or small fruits, or placing a plant wherever there is room for one. This last way is important, because it may be carried out in small gardens everywhere, and by its means we should become more readily convinced of the value of giving plenty of room. Single plants here and there in the open spaces between bushes, fruits, or dwarf pyramidal Apple or Pear trees, or single lines, wherever room can be found for them, would, from the sufficient space allowed to each plant, soon convince all of the value of the system.

PLANTING.—Healthy yearling plants are always chosen, and they are planted about the time, or a little before the time when growth commences in spring. They are invariably planted in a shallow trench somewhat like a Celery trench—not quite so deep and not manured as that is, supposing that the ground is in fair condition. In a trench about 8 in. deep the plants are placed on little low hillocks, and they are carefully attended to for the first year. The plants, be it noted, are 4 ft. apart in the line, and 4 ft. apart in the trench. It will be noticed that the second essential difference between the common way—that in use with us—and the way it is now desired to make known is, that in garden soil of fair quality no manure is used at the time of planting. There are soils in which drainage and preparation might be required; but assuming that the soil is as good as garden soil generally is, no preparation whatever is given beyond the opening of the trench and the planting of each root in a little fine surface-soil; the great expense which has been supposed to be necessary in the culture of this plant is, at the commencement at all events, avoided. It is when the plants begin to get strong and well established that a little manure is applied. There is thus a great economy in two things—in plants and in manure, which under the usual system with us is used to the most wasteful extent—so much so, indeed, as to seriously limit production by causing alarm as to expense.

STAKING.—A most important point is the regular staking

of the plants, the stakes being firmly placed clear of the root and in a slanting position across the shoots of each plant to which they are loosely, but firmly tied. The stakes are usually of barked Oak branches about four feet long, and calculated to last some years, but failing these any Hornbeam, Hazel, or stakes made from any other underwood will do.

BLANCHING.—The question of blanching it, more or less, is apart from the question of cultivation, and people may adopt the only true system of culture without blanching, if such be their taste. But a closer acquaintance with the subject will probably teach many that there is something in this despised system of blanching, which so many persons, lamentably ignorant on the subject beyond experiences of their own overcrowded and ill-grown beds, rush into the gardening papers to declare it to be an absurd practice. All good judges and good growers know that it is necessary in the highest culture, and to secure the most delicate flavour, and also to prevent the rising shoots breaking in warm weather into scales or leaves before they are fairly developed. The best foreign Asparagus is blanched by piling little mounds of friable earth over the stools in spring.

HOME CULTURE.—Our markets are full of Asparagus in spring grown in other countries, sometimes hundreds of miles from London. It is a vegetable which perhaps more than any other loses quality every day after it is cut. This is one reason why it should be grown in our own country. The soil and the climate of England, in almost every county, are admirably suited for the production of Asparagus. Nevertheless, not only do we not supply our own markets, but many possessing estates cannot get a good dish without sending to Covent Garden for it. All this is wholly unnecessary, for every farmer's garden and every cottage garden might grow it well. In large places, where a few beds formed on a costly and wrong principle now furnish a very limited supply of very poor Asparagus, there ought to be an abundance for everybody. Our markets ought to be supplied by our own people, the early supplies coming from the south and the late ones from our northern counties.

MUSHROOM CULTURE.

Will some of your correspondents kindly help me out of my difficulty? I have a house 15 ft. long and 9 ft. wide, the height at front is 6 ft. 6 in., and at back 9 ft. I have two beds; one, 3 ft. 3 in. from the floor, is made upon staging 3 ft. wide and 1 ft. 3 in. deep; the second bed is on the floor under the staging and the same size as that above it. In the two beds I have a surface equal to 51 ft. long, 3 ft. wide, and 15 in. deep. The spawn was put into a portion of the bed on December 18, the temperature being 87°. It had lain on a damp floor for eight days previously, and was laid out ready for the other portion of the beds at least eight days before it was used. It was then put in the beds, the latter having a temperature of 85° and 90°. I have a stove in the centre of the house with which I have kept the heat up to 50° and 55° during night and day. The manure is from draught horses, and has only a very small quantity of soil amongst it. The beds were soiled in about nine days after being spawned; there is from 1 in. to 2 in. of soil on beds which came off an inside Vine border, so that it was in a moderately dry state when used for soiling. I may add that I did not pinch the beds for spawn, having used thirty-three bricks which seemed to be full of bluish threads. The bed on the floor has now a temperature of 51°, whilst that on the staging has 58°, 59°, and 60°, and the spawn seems to have filled the bed with a white-looking filament, very rank, and with an odour like that of Mushrooms, but I have not seen one yet, and being fifty days since I spawned I am beginning to think I have mismanaged my work.—G. B.

—“*Agaricus*” (p. 112) may grow good Mushrooms in the space between the back wall and the footway, provided he treats them properly, without any injury to his Vines or plants. Get a quantity of fresh droppings from hard-fed horses, lay them on a shed floor, on which put also an equal quantity of good sweet dry soil, mix both well together till a sufficient quantity is obtained, put them into a

good heap and make all solid, allowing it to stand twenty-four hours or so, when the soil will absorb the ammonia out of the manure and prevent over-heating. This compost may then be wheeled into the Vinery and made into a bed and trodden down as solid as possible, leaving it when finished a foot or so in depth; put in some good spawn, in pieces about 3 in. square and 1 ft. apart, cover all over with some good strong soil 2 in. in depth, and beat firm with the back of a spade. Sprinkle with sufficient water so as to leave the surface as smooth as possible. Keep the surface of the bed in a healthy state as regards moisture by a covering of soft hay, which can be kept moist, a much better plan than watering the beds; if any ammonia should escape give a little top ventilation.—J. SMITH, *Waterdale*.

— In reference to the question of "Agaricus" (p. 112) I may say that Mushrooms have often been grown in vineries and under stages in plant houses. Of course care must be used, as rank steam from horse manure will prove injurious to young foliage. The manure must be thoroughly fermented and sweetened before it is taken into the house, and then there will be no danger. It is a good plan to mix a proportion of loam with the manure, as this absorbs the rank gases and prevents any ill effects arising from imperfect fermentation. The late Mr. Wighton, of Cossey Park, Norwich, grew excellent crops of Mushrooms for many years in his Vineries all the year round. The houses, which were old-fashioned, had wide deep pits all along the centre, and in these pits over the genial warmth of beds of leaves he made his Mushroom beds in sections as required, and he very seldom purchased any spawn, as the successional bed was usually made before the previous one was exhausted, and so he inoculated one from the other. The manure must be sweet if there be any young growth on the Vines or of any other kind in the house. I once saw a house of Cinerarias and other soft-wooded plants destroyed by incautiously taking fresh manure into the house to make up a Mushroom bed under the stage. The owner, an amateur, had read somewhere of prolific Mushroom beds in such places, but having only half learnt his lesson he took the manure in fresh, and as soon as the heat arose and the ammonia escaped in the atmosphere of the house one single night with the ventilators closed did the business; the leaves of the Cinerarias and Pelargoniums all drooped and turned black next morning, as if scorched; and this was entirely through neglecting to properly sweeten (as gardeners say) the manure before taking it into the house, or to mix a sufficient quantity of earth with the fresh manure to keep down the fiery heat and absorb the dangerous gases as they were evolved by the fermenting material. In the situation mentioned by your correspondent, I should think the hot-water pipe being so close would make the atmosphere too dry if the pipe became hot, otherwise with care Mushrooms will succeed under the conditions he mentions.—E. HOBDAY.

— I think "Agaricus" may succeed well with his Mushrooms in the well warmed space he describes at the back of his Vinery. The chief danger would be an excess of heat and of drought from the proximity of the hot-water pipes, but the former might probably be modified, and it would be easy to water copiously against the pipes as soon as the Mushrooms began to show. It is hardly safe to water before, as few things check or destroy the growth of spawn sooner than water. As soon as it is developed into Mushrooms, however rudimentary, these will bear and thrive well under liberal watering. The amount, however, should be largely regulated by the degree of heat—the more heat the more water may be given with advantage. We see this truth constantly illustrated in the out-of-door culture of the Mushroom. They spring up in the meadows as if by magic soon after a few genial showers or several drenching rains succeed a long spell of hot dry weather. "Agaricus's" pipes may prove like natural droughts, and must therefore be accompanied or succeeded by copious waterings if he would gather plenty of Mushrooms. No fear need be entertained of the injurious effects of ammonia; on the contrary, that in such moderation as is involved in the placing of a Mushroom bed against the back border of his Vinery will prove beneficial. The manure will of course be partly worked and sweetened outside. With the rank steam and juices and gases sweated out the moderate escape of ammonia will prove most useful to the Vines, providing them at once with food and vapour. Decomposing materials, such as manure leaves, tan, Cocoa-nut fibre refuse, have frequently been expressly introduced into Vineries on purpose that the Grapes might thus be provided with extra food. A mixture of stable manure and fresh tree leaves are preferred, that a sufficiency of ammonia may be evolved, so that "Agaricus" need have no fear on this or any other head, for Mushrooms have often been grown on the floors and even under the stages of Vineries, and, provided the temperature and treatment are suitable, they will grow as well in Vineries as anywhere else, for it is impossible that the Vines can hurt the Mushrooms, and equally so, as we have shown, that the Mushrooms can hurt the Vines.—D. T. FISH.

Asparagus on Clay Soil.—Some twenty-four years ago I can remember seeing fine Asparagus at Gosford, not in a walled garden, but in a sort of outside field garden, and I can remember the then gardener telling me about his having to stake the heavy growths in summer, as the wind blew sometimes off the Firth of Forth with great violence and prostrated the Asparagus. By the way, at Gosford can or could be seen the grandest masses possible of Hippophae rhamnoides, planted to break the force of the sea breeze; the shelter within was perfect, and the defence seemed strong enough to defy a herd of elephants; the hoary aspect of the plant had a fine effect in the mass. Gosford is a salty, sandy situation, so far as I can remember from my one visit, and would suggest itself as a grand locality for the growth of Asparagus, theoretically speaking. I wish to dissent, however, from Mr. Addison's statement in THE GARDEN (p. 117) that Asparagus will not grow on a strong soil if at all clayey. I can say that I have seen it grown of good forcing quality on the heaviest yellow clay—clay so stiff that it would require the spade first dipped in water before treading it into the soil in digging, otherwise the clay would stick to the spade like glue, the subsoil being equally stiff boulder clay impregnated with magnesian limestone. My experience of this clay was that it grew the very best vegetables, Asparagus included, after trenching and ordinary manuring. I am inclined to think that Asparagus will do better and last longer in strong soil, that is, soil whose base is clay, provided it is naturally well drained than in the orthodox sandy soil. I do not wish to controvert the usual proposition that sandy soil and even sea sand may be best for Asparagus. I am only from experience able to defend the heaviest clay when well managed. Coal ashes are often recommended as an improver of clay for Asparagus and other vegetables; their efficacy is doubtful, and the same must be said of sand. Probably the best improver of clay is timely cultivation, as the weather dictates, and dressings of animal manures and rotten leaves, unless a wholesale burning of the subsoil can be taken in hand. Our very heavy clays are not yet sufficiently appreciated, nor will they be, probably, until labour and rents are cheaper.—HIBERNIAN.

Gigantic Cucumbers.—In justice to the gentleman who made the mild protest against one of our correspondents' remarks on large Cucumbers we are bound to state that the engraver of the cut in question sends us the photograph from which he made the block, and it certainly shows the Cucumbers as large as they appear in the illustration. There is a man in the central passage who really looks a poor insignificant creature beside the enormous crop of bolster-like bodies by which he is surrounded. Be it so, but the fact remains that people do not grow Cucumbers this size for the purpose of eating them, and there is no reason why they should be made pictures of in their obesity, except for advertising purposes.

NOTES AND READINGS.

So Orchids are easy to grow, are they? This is an assertion that has been made more than once before, and we believe it has almost been made by beginners in Orchid culture. Nevertheless, such statements deserve notice, for there are many people ready to seize upon them and expect greater success in their attempts at culture than they have any right to look for. It is comparatively easy to grow Orchids when you can buy good plants to start with, when you possess a suitable house or part of a house to grow them in, when you have a man in charge who understands the habits and wants of the numerous species and varieties under his care, and when he is allowed as much time to attend to them as he requires to pot, water, ventilate, damp, wash, stake, and watch from slugs, beetles, and other vermin, &c., &c., &c. Comparatively speaking, however, Orchids are not easy to grow, and that is why there are so many poor and unhealthy collections. Any ordinary good gardener may successfully grow a house full of any single species, like *Odontoglossoms* or *Dendrobiums*, *Cœlogynes*, or *Lycastes*, &c., but when he comes to have a variety, and perhaps indifferent accommodation and means, he must be a slave to his charge who is more than ordinary successful. Those who think their culture an easy matter should go to Veitch's, or any great Orchid dépôt, and note the pains that is taken with the plants and the expense that is gone to in order to provide for their wants in every way. It may, in short, be safely asserted that Orchids require far more care and skill than any other class of plants.

As a delightful fragrant flower at this season and for months to come, there is hardly anything surpasses the lovely pure white *Odontoglossum pulchellum majus*. The flowers are not unlike a

tall and massive spike of Lily of the Valley, and they remain in perfection a long while. It is one of the cool house kinds, and is a very free grower and flowerer. For a button-hole or for the hair there is no better ornament, and we should advise all those who delight in pretty and fragrant flowers of enduring habit to grow as much as they can of it.

Horticulture is now a branch of industry of great extent, variety, and importance, and there is hardly any topic connected with it that has not received more or less attention at the hands of authors, while numerous special subjects have had whole books devoted to them, but horticultural literature on the whole may be said to be in a chaotic condition, and there exists no comprehensive work on horticulture at all. Its literature is fragmentary and crude. It is best represented in the horticultural press, which mostly possesses only a fugitive interest. The great want of the day is a standard work of cyclopædical comprehensiveness and aim, in which all that is worth recording of horticultural history, knowledge, and practice could find a place, and where any subject of interest would be described in an accurate and impartial manner. Such a work would have the fault of all works of the kind; it would grow old and in some ways fall behind the times, but its value would, nevertheless, be great, and if issued in a convenient form it would be popular. The library of the gardener is a limited one, because the great bulk of gardening books are out of his reach. What he needs is a dictionary of horticultural knowledge really, but no such storehouse exists for him. The encyclopædical literature of the age is said to have increased the sum total of general intelligence in no small degree, and horticultural knowledge could be vastly extended by the same means. Loudon aimed at a work of this description in his "Encyclopædia of Gardening," which is certainly a laborious compilation, but it is wrong in design. In these days such a venture one would think might be attempted.

It will be a good thing if the prize of £5 offered by the Society of Arts produces a good useful label, for such a thing is much wanted. It should be easily made or easily procured, cheap, and lasting. The common tally is not an ornamental appendage to any plant, but it looks particularly bad on the flower border or bed when many are used, reminding one of the tickets on garments in a clothier's shop window. Labels are necessary, no doubt, but they should not obtrude themselves on the sight too much, as they sometimes do in botanical gardens, for example. When gigantic labels like small headstones, and printed or written in large letters, frequently denote the whereabouts of the most diminutive plants, they are no doubt convenient to enquiring students, but to him who "scans and spells," and who represents a very numerous class of visitors, they convey little information, while they are a sad disfigurement to a group of plants, and give the garden a graveyard aspect. We believe it was at Kew where we saw beds of labels that were far more conspicuous than the plants to which they were attached, and the lettering was evidently intended for short-sighted visitors. The least conspicuous labels we have ever seen were made of charcoal from wood of a hard and smooth texture, and written with a white crayon pencil, but of the lasting qualities of the material or the writing we cannot speak, though the lettering was unusually distinct, while the black label itself was hardly noticeable. The worst fault of the common deal tally is that, although it is convenient and handy for temporary purposes, it soon rots and becomes indistinct. A label that would last stuck firmly into the ground, and preserve the writing legibly for a long period, would be a real boon. The complaint of all gardeners is that as common labels soon decay, and are easily moved, they get displaced by careless men, and become a source of confusion in extensive collections where clearing and tidying up has to be attended to. The most imperishable labels we have ever seen are Maw's terra cotta, when attached to the trees by wire. These will last for a score of years or more without showing the least alteration or defacement, but when stuck into the ground a winter's frost destroys them, breaking them up into fragments, as it does many kinds of earthenware. We can state this from practical and repeated experience of them—not a single ground label escaped destruction. They fall so quickly to pieces after frost that the names get lost if precautions are not taken in time.

PEREGRINE.

On Feb. 26 we shall publish an illustrated account of the gardens at Gunnersbury.

ORCHIDS.

PHAJUS GRANDIFOLIUS.

I CONSIDER this noble evergreen plant to be one of our most useful winter-flowering Orchids, for if properly treated during the growing season, and kept in a cool house during the autumn to rest, one may have a succession of bloom from the end of December till late in spring. For early flowering the plants must be encouraged to finish their growth early in the season, and they should be rested in a cool house for a time, removing them into the stove some time in October or early in November, when, if all goes well, they will be in flower in January, and by bringing the plants into warmth as required, a successional display of flowers may long be had if kept free from damp. The plants should be kept in the driest corner of the stove after opening their flowers. If grown in small pots they may be used for the decoration of rooms, or for the dinner table, and if kept rather dry at the roots some time before being used, all the better. Single blooms may also be used among other flowers to fill small vases or specimen glasses, for, being white and brown in colour, they make a pleasant contrast, with their associates, such as *Eucharis amazonica*, *Plumbago rosea*, *Euphorbia jacquiniæiflora*, or winter flowering *Begonias*, using fronds of Maidenhair Fern, or some sprays of green plants to mix with them; the spikes are also very effective when cut and put into vases, either singly or in groups, using some green leaves or Fern fronds to mix with them.

This *Phajus* requires liberal treatment during its growing season; as soon as the plants finish flowering I repot them every spring, for I find they flower more freely by having plenty of fresh soil to root into. If the plants are in good health and growing strongly they will fill their pots full of roots even if given a liberal shift every spring. Being a terrestrial Orchid, it requires a good sound compost to root into; the compost which I use consists of good turfy loam broken into pieces about the size of Walnuts, leaf-mould, some good peat broken into small pieces, rotten cow manure, and a portion of silver sand to keep the compost open and to keep it from getting sour. I use about equal portions of loam and peat, and not quite so much leaf-mould.

For large plants put 3 in. of drainage in the bottom of the pots; over that place a good layer of Moss, then some pieces of fibry peat finishing with the compost just recommended; pot rather firmly and keep the crown about 1 in. below the rim. After potting, place them in a warm stove, water sparingly until they make a good start, when more water will be required, using liquid manure twice a week until they have finished their growth in the autumn. The leaves will then be from 3 ft. to 3½ ft. in length, and the plants will produce their flower-spikes above the foliage from 2 ft. to 3 ft.

Old plants broken up and potted in 4½-in. and 6-in. pots will flower freely, using the same compost as for large plants, but less drainage, according to the size of the pots. These young plants will flower freely the first season if well fed with manure water, and they will be found useful for house decoration or for grouping in the stove among fine-foliaged plants. I have grown this *Phajus* for several years and have always found it to flower freely, but it likes plenty of pot room and liberal feeding. I have some in flower at present which have been very useful both as decorative plants and for supplying us with cut bloom, and, having some more to succeed them, we will be able to have a supply for some time to come.

The Rookery, Bromley Common.

WM. CHRISTSON.

The Constable Burton Orchids.—We understand that the celebrated collection of specimen orchids at Constable Burton, made by the late Mr. J. Maclaren, has been purchased by Messrs. Backhouse & Son, of York. In it were grand masses of *Saccolabiums*, some of which will be marvellously beautiful when in bloom. *Cattleyas* are also well represented. One specimen of *C. Trianae* var. *Dodgsoni* measures 5 ft. across. Another variety of the same species had over 100 stems and 20 leading growths. Two fine plants of the old autumn-blooming *C. labiata* promise everything that can be desired. There are likewise large plants of *C. Skinneri* with 50, 60, 70, and 100 stems each; also enormous masses of *Celogyne cristata* and *C. cristata maxima*. Amongst *Dendrobiums* are noble specimens of *D. albo-sanguineum*, *Farmeri*, *chrysotoxum*, *aggregatum majus*, *Devonianum*, *Pierardi* var. *latifolium*, *moniliforme*, &c.; the last named a grand plant 4 ft. across. One *D. densiflorum* has between 200 and 300 stems. Fine examples may also be seen of *Cattleya Mossiae* (one bears the highly promising name of *C. M. alba grandiflora*), *Aerides Warneri*, *Vanda teres*, and many others—indeed, over 200 specimens in all—will doubtless make a rich display in due season. The collection testifies strongly to the energy and ability which have raised and developed such plants in the course of some 25 or 30 years.

THE INDOOR GARDEN.

HABROTHAMNUS FASCICULATUS.

THOUGH this has been for many years an occupant of our green-houses it is not often seen in such perfection as the plant from which our drawing was prepared, which was grown in Lady Mayo's garden, Greenwich Park. It is indeed the nearest approach we



Habrothamnus fasciculatus.

have ever seen, as regards the size of clusters and depth of colour of the flowers, to the coloured illustration of native specimens which was published in the Transactions of the Royal Horticultural Society several years ago, when the plant was first introduced from Mexico. It is certainly one of the finest and most useful productions we have yet obtained from that region, and its value is greatly enhanced by the fact of its flowering most freely in the depth of winter, when but few other flowers are obtainable. Than it we could not recommend a more suitable plant for planting against the back wall of a cool house, which is generally the most shaded, for it is a curious fact that this plant thrives best when under a subdued light, though it may be grown trained to

the pillars or rafters of the house. Its culture is simple, merely requiring to be planted out in a well-drained border of moderate size filled with a good rich soil. The other species—*H. corymbosus* and *H. elegans*—are scarcely less beautiful if well grown, and now that the *Cestrum*s are merged with the *Habrothamnus* we might add the handsome yellow-flowered *C. aurantiacum*, which is one of the finest pillar

plants we know of for autumn and early winter flowering. W.G.

Habrothamnus fasciculatus.—This I consider a famous plant for covering large spaces of bare walls in conservatories and greenhouses. We have a plant of it here covering a space 15 ft. by 10 ft., and it is evidently capable of covering a much larger area. It has been in flower for a month past, and will apparently continue in that condition for the next two or three months.—R. R. [Our correspondent also sends us flowering sprays of *Acacia dealbata* in order to show how useful this *Acacia* is as a winter flowering plant. The plant from which it was cut is growing in a 14-in. pot in a conservatory, and has attained in about 3 years a height of 14 ft.]

Greenhouse Climbers (p. 103).—It is, I think, useless attempting *Roses* in a greenhouse at South Kensington, they being of all plants most impatient of smoke and an impure atmosphere, to stand which nothing is equal to thick shiny-leaved subjects, like *Tecoma jasminoides*, *Rhynchospermum jasminoides*, and the *Bignonias*, which are easily kept clean by means of clear water and a syringe. *Pasifloras*, too, would no doubt succeed well, as the growth is renewed annually; and *Lardizabala biterminalis* has beautiful green foliage and is a fine looking evergreen. With plenty of water and attention during the growing season it is very likely that the lovely *Lapageria rosea* and *alba* would do, but these like shade and a moist atmosphere, and must be kept free from thrips by syringing with tobacco water, or they soon get disfigured. *Magnolia grandiflora* would do well on the wall, but not as a climber, its habit being more of a bushy character, and although it might be led up to the roof, it would take years to do it, as its rate of growth is very slow.—S. D.

Cineraria Seed.—Do plants from seed supplied by seedsmen usually produce good flowers? My experience is that they do not, and I have grown seed supplied by several firms. Growers with whom I am acquainted assure me that they sometimes get a small proportion of good flowers, and sometimes all are equally poor;

some I saw in different places last year were not worth house room, and in all cases a good flower was the exception rather than the rule, a result very disappointing after all the care bestowed on them. Some recommend propagation by offsets, but I do not think this is necessary, as satisfactory results can undoubtedly be obtained from seed provided good varieties are selected for seed bearing. I intend to obtain a dozen named varieties to commence with, and to save my own seed. Will some reader of THE GARDEN kindly name a dozen good in flower and habit and distinct in colour?—W. C.

Daphne indica.—What treatment suits this *Daphne* best? I have a large plant of it, but it is very sickly, and has been so for a long time. Last spring I re-potted it in peat soil and silver sand, but it seems to do no good. What soil and what heat suits it best?—F. J. J.

THE FLOWER GARDEN.

SINGLE DAHLIAS.

It must be satisfactory to the true florist to see the most beautiful of all flowers, the single Dahlia, coming to the fore, and it must be equally puzzling to him to understand why so lovely a flower has been in the background for so many years. How many rich treasures have been cast aside by growers of double Dahlias in their competition for enormous Cauliflower blooms it would be difficult to estimate, and many regrets must now be felt for what can never be recovered. The cultivation of single Dahlias is, as has been stated, of the easiest description; any good garden soil without manure does for them, and they will do anywhere except where the sub-soil is non-retentive. In the neighbourhood of London one is sure of success, and single Dahlias may be regarded as *par excellence* the Londoner's flower. They are produced from the old roots in the usual way. In early spring the roots of last year should be planted in the borders of a warm house, and as soon as long enough, the shoots are detached with or without a small piece of the old tuber, and struck in bottom heat in separate pots. When the pots are found to be full of roots, the plants should be taken into a cool house and gradually hardened off until the time comes to plant them out. To raise from seed, the seed should be sown in February in heat, and the young plants should be treated in the same way as cuttings. The seedlings flower the same year, and are very interesting, inasmuch as the flowers very seldom come like those of the parent plant. No doubt by careful hybridising and covering up each flower left for seed the family likeness might be perpetuated, but I have never tried this experiment.

When on the subject of seedlings, let me recommend for Dahlias what I consider to be a good plan for all seedlings (and I would specially recommend this plan to Cucumber growers), viz., the sowing of one seed the right way upwards, in a 2½-in. pot; very few fail; it saves the after trouble of pricking out, and secures the plant in its entirety, not a fibre of a root being lost, and who shall say what influence this may have on the after well-being of the plant. All who grow Dahlias should invest in Dahlia pans, which must be placed over the young plants when planted out or soon after. No earwigs attack the flowers, because they cannot get to them if the pins be carefully kept filled with water. Let me recommend Mr. Matthews or some other maker of horticultural crockery to assist us Dahlia growers by making these pans with glazed interiors, which would save a world of trouble in having so repeatedly to fill them up with water. Dahlia pans, too, keep the roots constantly moist, which I find has no disadvantageous effect either on the plant or on the tubers for winter harvesting.

Dahlia perfecta, originally introduced by Messrs. Henderson, is perhaps the finest flower which we possess, unless Paragon, brought into notice by Mr. Cannell, may be considered to bear away the palm. Lutea, a quilled yellow, is also a grand bouquet flower. I have met with much success in raising seedlings of great beauty; amongst them I have a yellow of the same shape as perfecta, a white with blush edges, and another white one, which, although somewhat discoloured in intense sunshine, is absolutely pure at the commencement and finish of the season, a veritable Christmas Rose then, and another seedling which I possess, having very dwarf habit, has a bloom like a Zinnia and foliage like a Grevillea. I had almost forgotten to name a very excellent and free bloomer, Dahlia gracilis, introduced by Messrs. Hooper & Co., of Covent Garden, and which is the parent of many of my good seedlings. W. H. C.

GRASS LAWNS AND NON-COLLECTING MOWERS.

As one who has for some ten or twelve years practised leaving the Grass uncollected on lawns, more or less according to circumstances, I can scarcely agree with "A. D." (p. 97) in reference to this subject. I admit that it is not advisable to leave Grass on a lawn where it is rank and luxuriant, as it only makes mowing more heavy, and it does look untidy if the cutting is not done very frequently. But to say that Grass on a lawn is injurious when the Grass is thin "on poor, hot, dry soils" is altogether opposed to my experience. Does it not strike "A. D." that if Grass is present in such quantity as to be a nuisance, it cannot be so small as to be of no value as a mulch for the lawn? As "A. D." says, there is no question about the desirability of having a lawn smooth, clean, and closely shaven. It should not only be so four or five days a week, but it should always be so—always the same. Now to attain this very frequent mowing is necessary. A lawn that is only mown once every week cannot be said to be always the same. In fine growing weather it will often be found two days a week out of condition. Formerly I used to mow only once a week, collecting the Grass,

except on banks, or when the weather was hot and there was not much Grass when it was left, and on these occasions we always found a considerable saving of time. By degrees we saw that we could mow the Grass three times without collecting in the same time that we could mow twice collecting and removing the Grass. Moreover, we found that the work was much lighter, especially when the Grass is wet and the lawn is always in good order. By mowing three times in every fortnight instead of once a week, the Grass is so short that it is never a nuisance, and if it does no good, as "A. D." would have us believe, our lawns and others where the same course is adopted, certainly show that it does them no harm. Let your correspondent try for himself both plans. If he wishes his lawn always close and smooth with the least amount of labour, let him mow every fifth day, leaving the Grass, and I think he will very rarely have any objection to the appearance of the Grass. Some may be ready to doubt that the stoppages consequent on collecting the Grass amounts to one-third of the whole time. To those who do so I would say—try the experiment before deciding. R. L.

"A. D." (p. 97) is right in his remarks that one dressing of guano is worth a hundred of mown Grass, and it needs only a very small dressing of either of these stimulants to equal the amount of grass cut in a whole season. How people can tolerate the untidy appearance which strewn grass gives a lawn I cannot understand, as a puff of wind carries it on to the walks, and gives a garden the appearance of a miniature hayfield. Mowing machines are now almost perfect in every respect; they will cut long Grass or short, and pick it up or scatter it abroad, or leave it at will. Not only are they equal to all this, but they are light and durable and work easy—very different from those I remember some thirty years ago. What does lawns so much good is not the cut Grass left, but the regular shave they get by setting the machines at a height that will not cut into or damage the heart of the plants, as when snipt too close, the sun scorches them up, and weeds soon take their place. Some lawns are particularly subject to weeds, and more especially to Plantains and Daisies, which are a great disfigurement, but by a little perseverance both may be easily got rid of. The best way in which to deal with them is to get some vitriol in a wide-mouthed bottle and put a strong wire round its neck to carry it by, when by dipping in a notched stick, a few drops may be let quickly into the crown of each weed, which will soon burn out the heart and cause them to perish. It is, of course, necessary to use the acid with care, as it will blister the skin and damage any clothing which it touches.

Another way of extirpating weeds from lawns is to spud or cut them out in spring. Moss, too, is a great eye sore, and many lawns are subject to it. The best cure for it is hot lime, which with a little soot added, greatly improves the appearance of the Grass. To get the lime on regularly it should be slaked and mixed with moist sifted earth, which by giving weight prevents it from flying about when being sown. A rub with the back of a wooden rake will work it in and help to break up any small cobbles, if these are left exposed to the air for a time. Not only is a good dressing of lime highly beneficial to lawns on account of its killing Moss and encouraging the spread of the Grass, but it destroys or drives away worms, which are such a nuisance all through the autumn and winter months in throwing up casts.

In cases where lawns are worn, or from any cause are thin and patchy, the present will be found a good time for repairing them, as where fresh turf has to be cut and laid it cannot well be done too soon; if deferred till we get dry weather it requires a good deal of labour and attention in watering to induce it to start and lay fresh hold of the ground. The most suitable turf for mending lawns is that from a close fed pasture where the Grass is always short, or from near roads or paths where it has been subjected to a good deal of traffic.

If seeds are used instead of turf, the ground should be broken by the use of a sharp toothed iron rake previous to sowing, and it is a good plan, for the better distribution of the seeds, to mix them with a little fine earth or sand, when they can be sown with great regularity. Seed saved hap-hazard from the sweepings of mangers is bad, as it is sure to contain weed seeds, and those of the coarse Grasses, which are quite unfitted for lawns. Mixtures such as are sold by the leading nurserymen are the most suitable, as they are selected and made up for the purpose, and a few pounds will go a long way. After sowing, it is a good plan to scatter a little fine soil over the seeds, and to roll down while dry, as then the seeds get well covered, and are out of reach of finches and other small birds that would otherwise devour them. Lawns that are unlevel may after these late severe frosts be easily beaten down, but depressions can only be righted by lifting the turf and putting soil under it to raise it, and this is work that pays well for the doing, as nothing looks worse in the case of a Grass plot than an uneven surface. S. D.

PYRAMIDAL HOLLYHOCKS.

A CORRESPONDENT suggests (p. 122) cutting the stems of Hollyhocks down at an early stage of their development to cause them to form bushy specimens. I cannot, however, imagine anyone doing this from choice, as the character of the plants would be quite spoiled thereby; there are no flower garden plants capable of producing such a noble effect as the Hollyhock, and the taller it grows the more characteristic it is, reminding one of the original single forms, some of which are still to be seen in cottage gardens. Hollyhocks should be planted where they can be protected to a certain extent from high winds, which break and injure the leaves. Planted in groups before a background of shrubs and trees where they can be seen from a distance they are very effective, but they must be provided with rich deeply trenched soil free from roots of trees or shrubs. Seedlings are best, perhaps, where large numbers of plants can be utilised for decorative purposes. They produce the best spikes, and also throw out a great many side branches. A large proportion, too, will be as good as the parents, and if they have not been crossed they often do not differ very much from them. I well remember saving some seeds from a fine dark crimson variety, raised by Mr. John Laing, of the Stanstead Park Nurseries, and at least 50 per cent. of the produce were so like the parent that they might have been substituted for it, a circumstance which points to the fact that if novelties of this or any other flower are to be obtained, some pains must be taken to cross certain varieties of recognised merit with others of a different colour possessing the most desirable points. Bright and decided colours in the flowers with vigorous constitutions are desirable qualities in the pollen parents. The Hollyhock is also one of our finest plants for autumn exhibitions—before the Dahlia even for that purpose. I see that the council of the Manchester Botanical Society have wisely included Hollyhocks in the schedule of the International Exhibition to be held there in August next. They are to be exhibited as spikes (which is the best way), and also in the form of cut flowers. If it is intended to grow them for exhibition, they should be planted in the kitchen garden, or in some place where the cutting of spikes will not have the effect of spoiling the appearance of the group or border.

J. DOUGLAS.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Lily Bed.—I am about to make a small bed of Lilies, which are to remain untouched afterwards. Will some one kindly tell me how to form such a bed, and what are the best sorts to put in it?—LILLIAN, *Greenock*.

Double Wallflowers.—Most people are fond of the double forms of this old-fashioned fragrant flower, and attempt, or have at some time attempted, to grow them. The double varieties are not, as a rule, more difficult to grow than the normal type, and yet one seldom sees them in anything like good condition in gardens generally. The reason for this would appear to be an inability to resist with anything like impunity periods of severe weather. This year will, in all probability, witness the complete or partial ruin, according as climatal conditions are more or less favourable, of the greater portion of old-established plants. If the double kinds grew in the situations which Nature has decided to be proper for the Wall-flower in its natural state, we should not have to lament the fate that so often overtakes them. It is the unnatural conditions of growth which render this plant so susceptible to the keen wintry blast and gripping frosts; the wood and foliage, being somewhat overstimulated by shelter and abundance of food, do not attain the hardness and maturity necessary to enable them to successfully wrestle with grim winter; hence the wholesale destruction of these ever welcome flowers in hard winters, and the poor condition in which they are generally to be seen in gardens. The only way to make at all certain of keeping up the stock is to put in a few cuttings early in the autumn, and afford them just the amount of protection necessary to insure them against periods of severe weather. Care should also be taken to afford them the sunniest and most exposed situations in the garden; they revel in fierce heat and flower freely when well roasted in the summer.—J. CORNHILL.

Churchyard Grass.—A very old churchyard in the centre of a large city was, early last spring, laid out and sown down with the best lawn mixture after being trenched and properly prepared. The seed came up well and the Grass grew very satisfactorily, but as the season advanced large patches turned yellow and became very thin (almost bare) and unhealthy, and towards autumn the ground, instead of having a good bottom of Grass, was covered with a very short growing moss, which could be raked off almost in patches. The Grass grew luxuriantly during the summer, except in the patches which turned yellow, and was cut four times with the scythe and kept weeded and rolled. The churchyard is in the midst of a large manufacturing district, where there are a number of large chimneys pouring out volumes of black smoke. The ground is about two acres

in extent and open were it not for the manufactories. So far as making a good turf area we have failed, as the surface has become almost overrun with the moss. If any of your correspondents can point out the cause of failure we should be exceedingly obliged. I may add that a very large number of burials have taken place there in former times and very near the surface, so near that in trenching the ground over we came across many bones. The soil is very light and black, and a good part of it has at various times been put there; probably a fair portion of it was ashes. Would a good layer of maiden loam from a fresh pasture bring about the desired effect? The trees and many of the shrubs have grown so far fairly well.—ENQUIRER.

The Winter Heliotrope not a Native of Ireland.—The advantage of having lived more than half a century is often felt in the power it gives of throwing a light on the origin or history of some old flower or plant. In the present instance it enables me to say with confidence that the winter Heliotrope, so admired by "F. W. B." on the banks of the Dodder, is not a native of Ireland, the proof being that a guinea plant was its price when first brought to a garden in Wicklow with which I am well acquainted. This did not happen within my own recollection, but was a well established fact well known to us all many years ago. The "Cottage Gardener's Dictionary" gives 1806 as the date of its introduction from Italy, and it may have been soon after that time that it first appeared in the above-mentioned beautiful garden. Though a troublesome weed there, as in many other places, it must be allowed to have some merits besides its scent, the leaves being much relished by horses, and where suitably placed it is undeniably a very ornamental plant, worth the trouble of keeping it within bounds. In France it is said that the roots are used for food when dressed in a variety of ways like Potatoes, but without French cookery this practice is not likely to meet with many followers.—C. L.

Bog and Bog Plants.—In the formation of a bog garden considerable attention ought to be paid to natural surroundings, or such as have been made as nearly so as possible by artificial means. If we can conveniently associate the alpine garden with the bog garden so that the one gradually slopes into the other, so much the better. By such an arrangement and a little attention to soil we may find all the varying conditions of moisture necessary for the cultivation of a very great variety of plants, and a proper place for many which we may have hitherto had some difficulty in suiting. In that portion intermediate in character between the bog and alpine gardens in a soil the principal part of which is peat, with limestone grit and river sand added, we may grow at least fifty or sixty kinds, including Androsaces, Gentians, Lady's-slippers, American Cowslips, Mertensias, and several Primulas.—T. D., *Hatfield*.

Erica melanthera.—It is interesting to hear of the hardiness of this species, but whether hardy or not it is one that claims a place in the indoor collection on account of its beauty. Several years ago it was grown by Mr. Barron for the decoration of the conservatory at South Kensington, and probably is so still. In the Cambridge Botanic Garden are plants of it that have great value for cutting from. The quantity of tiny flowers it bears is enormous, and from the profusion of small bulbs, with black anthers peeping from within, the plant is an extremely pretty one.—R. I. L.

Effect of Frost on Plants.—Some observations made at Giessen last winter by Herr Hoffmann throw light on the way in which plants are injured in times of hard frost. The great advantage of a hilly position was then apparent; the plants so situated took little or no harm, while in the valley there was extensive injury. The injury, too, decreased in proportion to elevation above the valley. Some tender fruit trees placed in specially favourable circumstances on the lower ground withstood the lowest temperature (23° R.). Still more instructive was the fact that one and the same bush—e.g., of Thuja—was killed, as far as foliage was concerned, on the south side, while on the north side it remained green. The author infers that it is not a particular degree of cold that kills a plant, but quick thawing. It is indifferent (Herr Hoffmann says) whether the thawing be caused by a warm wind and at once or daily repeated by the sun. On December 28, at Giessen, in the valley, the air temperature was raised (by a south-west storm with rain) from minus 17° in the night to plus 3° at mid-day. On the hills the thawing wind acted with the same high temperature, but the previous cold was less. The effect of thawing by the sun could be observed on Pear trees in the middle of December, long before the thawing weather came; they were killed by the daily variations of temperature of over 20° from the night minimum to the day maximum. Herr Hoffmann also considers that when plants are thoroughly frozen the killing takes place as surely, whether the temperature of the plant be raised—e.g., 20°—from minus 17° to plus 3°, or from minus 10° to plus 10°. With each degree of less variation the injury is proportionately less, and for each species the fatal amplitude of

variation is special and determinate. Hence the best practice is to shade from sunshine all frozen plants, either with mats or other suitable covering. Snow is Nature's plan of covering, and art may now assist by heaping snow around small shrubs and other plants, so as to ensure a gradual thaw. The old garden practice of syringing with cold water and shading afterwards with thick mats to ward off the sun is a good one. Plants on northern and western walls often escape injury from frost when those on eastern and southern ones sub-cumb.—B.

Clustered Ivy (*Hedera conglomerata*).—This is a peculiar Ivy and quite distinct from its congeners both in foliage and habit. The leaves are very thick and have a curious crimped appearance, while the plant instead of climbing forms a low spreading shrub, suitable for the shady parts of rockwork and similar places.—ALPHA.

AN ARTIST'S NOTES.

In my walks about I have come across some interesting trees, especially on the higher ground to the north of the Kennet Valley, where, as to the south, there are gravelly commons on most of the hill-tops. At the east end of Bucklebury Common is an avenue of Oaks nearly a mile in length, and quite perfect, except where there are farms or cottages by

planted ranks of young Oaks outside the old trees, so that the place will retain its character for perhaps centuries to come.



Old Willows.

On another part of the common are many fine old Birches, a mere remnant, I am told, of what there used to be, and these apparently dying off rapidly, but still forming striking groups. The dead stems, white and grey and covered with fungi, growing straight out like huge shells, have a very weird and ghostly look.

In the village churchyard there is an old ruin of a Yew, which must have been an enormous tree; only one small part of it is now alive.

Down here in the valley are mostly Willows and Poplars. The large Lombardy Poplars in the meadow by the river have had their tops much damaged by lightning. It is interesting to note how they anchor themselves toward the west and away from the stream by sending down broad flattened roots like muscles or tendons not more than 2 in. or 3 in. thick, though standing out at their base as much as 3 ft. from the main stem. I like, too, the little boughs, which start as if they would grow down, but suddenly remember their duty and turn up. The Willows hardly ever get a chance of growing big, being either pollarded every three or four years, or cut every year for basket-makers' rods, but when let alone they make most distinct and valuable trees, and I wonder that they are not even more used in ornamental planting.



Old Birches on Bucklebury Common.

the roadside. The trees have an average girth of about 10 ft., and are all perfectly sound and healthy. The road is wide, and in most places has a broad open green space on each side where the pigs and geese of the cottagers pick up a liveli-



Yew in Bucklebury Churchyard.

hood; the effect of the whole is most delightful, and I saw with pleasure that some true benefactor to his species has



Wistaria at Erleigh.

Not only is the summer foliage graceful in form and soft in colour, but the twigs of many kinds which I have noticed



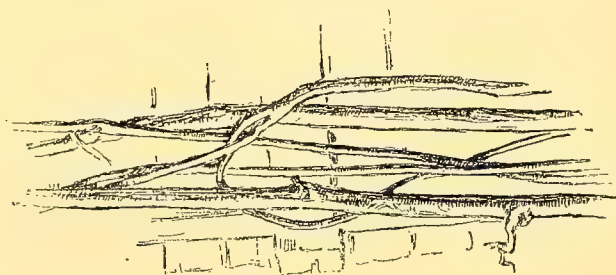
Poplar stems.



Wistaria with Rose growing through it.



Poplar twigs.



Direction of stems of Wistarias at Erleigh.



Wistaria at Erleigh.



Wistaria on back fence at Erleigh

here become quite gorgeous as winter approaches, gold and crimson and a purple black. The large one which we noticed at Highclere, Mr. Ross says a variety of alba, is getting a lovely colour—the leaves golden-yellow above and silver-grey beneath. This tree divides just above the ground into three trunks. I have noticed that old Willows often split in this way, even Pollards which have no weight to carry, but the detached parts apparently root for themselves wherever they touch the ground, and the tree becomes even more picturesque than it was before.

The cottage gardens are nearly bare of flowers; only the China Roses keep on gamely to the last, and Michaelmas Daisies and Fuschia Riccartoni are still gay. Some fields on the higher land are wonderfully bright with Corn Marigolds. I picked a bunch of these the other day in a Turnip field near Newbury which, with blue Cornflowers and white Chrysanthemum from the same field, made as brilliant a nosegay as any greenhouse could produce. Along the watercourses the Meadow Sweet has come into a second blossom, and where the reeds have not yet been cut are masses of colour orange, yellow, and pale-green Grasses, velvety Bulrushes, and grey withered Bents, and standing out boldly among it all patches and lines of big water Docks of a splendid crimson-brown.

There is an old Wistaria at Erleigh Court, near Reading, planted against a wooden fence, which it has quite taken possession of and covers for 150 ft. The fence divides an enclosed garden from a shady walk, and from the top rail some shoots have got into an old Yew tree where their pale leaves contrast beautifully with the dark green. In one place a semi-double Rose has been allowed to ramble through it, and this on the 10th of October was covered with bunches of pink flowers and buds. When the stems get to the shady side of the fence they only produce a crest of foliage at the top, but the quaint bare sticks run along for yards, sometimes looking like lengths of gas-pipe (one that I measured was quite straight for 36 ft.), and sometimes twisted like a cable round a post or bar, but with no artificial supports. These two enterprising twigs have already filled their knot-hole, and I am anxious to see what will happen next year when they try to grow.

ALFRED PARSONS.

HARDY FERNS.

(Continued from page 89.)

Athyrium Filix-fœmina may be taken to fairly represent with its numerous forms and variations one of the most beautiful groups of hardy plants in existence. They like a compost consisting of loam, leaf mould, and peat, mixed in about equal proportions with the addition of some sharp sand; they require abundance of water during their growing period, but of course artificial moisture should be discontinued in winter because all the varieties of this species are deciduous, and the ground at that period of the year is sure to be wet enough naturally to suit all their requirements. There are many fine hardy evergreen herbaceous plants amongst which Lady Ferns might be planted with advantage; they will thrive admirably anywhere provided they receive a little shade and protection from drying winds, being very impatient of drought; therefore plants that afford shade and shelter and that like moisture should always be chosen for intermixture with them. I feel sure that they simply require intelligent grouping and management to be classed amongst the most useful of hardy Ferns. Many of the variations of form of which this genus exhibits a greater variety than any other of our native Ferns, except the *Scelopendrium*, possess the greatest possible interest, notably

A. Filix-fœmina plumosum, one of the most lovely hardy Ferns in existence when it can be obtained true to name. Its fronds remind one of a plume of feathers, and they possess a lovely shade of green. *A. Filix-fœmina (Vernoniæ) corymbiferum* is a wonderfully fine crested variety, and *A. Filix-fœmina Victoriæ* is a kind that should be in the possession of all hardy plant lovers; by many this is considered the finest of all the varied forms of *Athyrium*. There is a Japanese kind of *Athyrium* in commerce in this country called *A. Goringianum pictum*, a remarkably pretty

variety said to be quite hardy, but we have had no personal experience with it in the open air; it is, however, worthy of careful trial. Most of the Lady Ferns thrive admirably in pots, and are thus available for a variety of most useful decorative purposes, looking as handsome in their way when seen at their best for table and room decoration as the most choice exotic kinds.

Blechnum spicant.—This Hard Fern is, as everybody knows, a most beautiful and popular evergreen kind, with which much more might be done in the way of general cultivation than at present. True, the *Blechnums* love rather densely shaded and moist spots, but that they will thrive in positions that by no means represent the conditions just named is an indisputable fact; give them good soil rich in decayed vegetable matter, and abundant supplies of water throughout the summer season, and they will do well in many a garden for which they have previously been considered unsuitable. In good soil and with proper attention to simple cultural details these denizens of our woods and hedgerows will often equal in appearance the finest exotic. There are many fine varieties of *Blechnum* worthy of culture, and their fronds are most useful in a cut state.

Botrychium Lunaria.—The common Moonwort is a widely distributed native species, generally found in moist sheltered meadows, which, however, some authorities do not consider to be a true Fern. But, however that may be, it is an interesting plant, and worthy of a place in our gardens. *B. lunarioides* and *B. virginicum*, two North American species perfectly hardy in this country, should certainly be included in all collections of hardy plants. All the *Botrychiums* are deciduous, putting forth their young fronds about the end of April, and dying down somewhat early in the autumn. The fronds are of a beautiful dark green colour, and the plant also produces a pretty little panicle of inflorescence. The soil best adapted for these Moonworts is a moist well-drained sandy mixture of loam and peat, just the kind of compost in which most of the American plants delight. With *Spiræas*, Lilies, &c., where the soil is little disturbed, and abundance of moisture is obtainable during their growing season, they would afford a very pleasing contrast.

Ceterach officinarum.—The only species of this genus indigenous to this country is this most distinct and beautiful little Fern, one admirably adapted for rock or alpine gardens, as it thrives best when planted between the chinks of rocks or stone walls. It is a Fern that, unlike most other varieties, abhors a confined, damp position; hence it can be planted in the most exposed places with good effect, and, with a little careful attention to its simple requirements at the outset, with almost certain success. The chinks and crevices wherein it is proposed to plant this *Ceterach* should be filled with a mixture of sandy peat and pounded limestone, a compost well adapted to its requirements. It might be associated in such positions with some of the little flowering *Sedums*, both plants being amenable to very similar treatment.

Cystopteris fragilis is probably the best known of the British species of this highly ornamental genus of deciduous Ferns; they, however, require considerable care in their culture, being rather impatient of exposure, and naturally prefer a moist, shady place to grow in, notably the fine British kind *C. montana*, which would thrive admirably planted on the shady banks of a small lake, stream, or ornamental pond, such as we sometimes find in gardens (and very often too with margins quite bare of vegetation), in conjunction with, say, such moisture-loving flowering plants as *Forget-me-nots*, *Meadow Sweets*, *Mimuli*, *Loosestrife*, &c. They require a mixture of loam, peat, leaf soil, and sharp gritty sand, and any care bestowed on their culture will be amply repaid by their great beauty. It may be remarked, however, that although they thrive best in moist positions such as those pointed out, yet like all Ferns the roots must be kept well above the water level. Amongst other varieties of *Cystopteris* worthy of culture may be named the beautiful and distinct British kinds, *C. Dickiana* and *C. D. crispata*, and the North American varieties, *C. bulbifera* and the very elegant *C. tenuis*.

Diplazium Thelypteroides is the only variety of this handsome genus of Ferns (which much resembles the *Aspleniums* in their requirements and appearance) with which I am acquainted that is hardy in this country; it produces beautiful dark green fronds, sometimes as much as 18 in. in height; it is a native of North America, and should be treated similar to the *Aspleniums*.

Hymenophyllums.—Although the *Hymenophyllums*, or Filmy Ferns as they are called, are decidedly hardy and very beautiful, yet the essential conditions for their successful culture are such, that in a general sense they cannot be used with effect in the open air. On the contrary, to do them justice they should be placed in a glass structure in a close, shady, and constantly moisture-laden atmo-

sphere, conditions that it need scarcely be said cannot be attained in open gardens; therefore, beautiful as these Filmy Ferns undoubtedly are, we cannot further discuss their many merits, simply because any attempt to include them in a mixed collection of hardy Ferns and flowering plants suitable for ordinary garden culture would end in failure; still, wherever the protection of glass is available they should most certainly receive that attention which they so well deserve.

Lastreas.—This, one of the noblest groups of all our hardy Ferns which we possess is widely distributed and greatly varied in aspect. Of these the common male Fern is the best known form; but, common as it is, it is one of the most beautiful, and certainly one of the most useful of the class to which it belongs. It is a kind that finds its way in large quantities to Covent Garden Market, where its roots at all times meet with a ready sale. It succeeds well in London area gardens, back yards, and all sorts of out-of-the-way places; indeed, this common Lastrea may truly be said to be everybody's plant, for with a plentiful supply of water given to the roots during its growing season it will thrive well in almost any position and in almost any kind of soil, a fact to which many a London area, otherwise desolate-looking, bears testimony to. Now, if so much can be done with Lastreas in the smoke of London, what effect might they not produce were they more largely employed in country gardens in combination with other plants.

Even in our public parks and gardens this Fern would succeed. There are scores of slightly sheltered spots in our parks that might be improved by the liberal introduction of this and similar robust hardy Ferns; amongst shrubs in groups it will thrive well even if exposed to the full rays of the sun provided plenty of water be given to the roots in hot dry weather. Either alone or massed with herbaceous plants this Fern would be very effective, and fine groups might be made of it and hardy flowering bulbs and other plants such as Narcissi, Hyacinths, Snowdrops, Crocuses (spring and autumn kinds), Lilies, Tulips, Anemones, Cyclamens, Irises, hardy Orchids and others. Such mixtures would possess both beauty and interest the whole year round. Lastreas present a great variety of form, so much so that they can be divided into at least two or three distinct groups differing in appearance in many essential points, some being quite deciduous whilst others are only partially so; and again, some varieties produce very large, tall, and well developed fronds resembling tropical vegetation in vigour and luxuriance, whilst others are very dwarf. The crested forms of *L. Filix-mas* are all very desirable. *L. dilatata*, is the well-known type of many varieties; it is found throughout the length and breadth of the land, and is commonly known as the "Buckler Fern." It produces fine bold fronds. A magnificent form of *L. dilatata* is that called *L. d. grandiceps*, a crested kind that should be included in all collections. *L. montana*, the Mountain Buckler Fern, is also a beautiful and distinct species, producing very gracefully arched fronds of considerable length. They are light green in colour and emit a peculiar and rather agreeable perfume. There is, moreover, in addition to several distinct forms, a very beautiful crested variety called *L. cristata*, in every way desirable.

All the varieties of *L. montana*, and indeed most of the other forms, will be found to thrive best in pure, loamy, well-drained soil. In addition to the large number of indigenous species of this Fern there are in this country several fine exotic species that are perfectly hardy and well deserving of attention; amongst these I may mention the fine Canadian *L. Goldieana*, a variety of a fine dark green colour, and one which produces bold, well developed fronds. *L. marginalis* is a North American medium-sized Fern in every way desirable. *L. atrata* and *L. novaboracensis* are also very excellent kinds indigenous to North America. A very handsome evergreen species of Lastrea is *L. æmula* (the Hay-scented Buckler Fern). This emits a sweet hay-like odour, especially when dried, and is well worthy of attention. It is a plant of moderate growth, and when seen at its best particularly beautiful. It is, however, scarcely so hardy as most of the other forms, and consequently a rather sheltered spot should be selected for it. Like all the other members of the Lastrea family, with the exception of the *L. montana* group, it makes a capital pot plant, and furnishes very beautiful and persistent fronds for cutting.

H. BAILEY.

Hardy Adiantums.—Mr. Bailey (p. 89) refers to a large variety of *A. Capillus-veneris* (Footi) which grows about 1 ft. high, and has fronds beautifully cut and divided. He says, "its native habitat is said to be Ireland, but I am not acquainted with the exact locality in which it is found." Permit me to inform Mr. Bailey and any reader interested in this beautiful variety that, visiting the gardens of Mr. Mitchell Henry, M.P., Kylemore, Connemara, last autumn, I was shown some fine specimens of this *Adiantum* by Mr. Garnier, the head gardener, there in a cool

Fernery with comparatively large fronds, and upon inquiry he informed me he gathered them in County Clare, near Lisdoonvarna. I am not aware of their being found naturally elsewhere, and owing to the numbers collected annually, they must soon disappear altogether.—W. J. M., Clonmel.

Allosorus crispus (the Parsley Fern) cannot be said to be evergreen, as stated by Mr. Bailey, for out of more than 100 plants it would not now be possible to gather a single green frond; in fact, I have never known its fronds to continue green throughout the winter months. Mr. Bailey is quite right when he states that *Asplenium fontanum* "is a lovely little Fern." A few years ago I visited the Maritime Alps, and brought home a number of roots of it, and I have since been much interested in noticing the many different forms which exist of this Alpine Fern. In cultivating it I have imitated as far as possible the conditions under which it was found growing in its native haunts, where it loves to hide beneath overhanging rocks. It does well in pots, planted in fibrous loam, with a good mixture of calcareous chippings about the size of Walnuts. R. POTTER, York.

THE ROSE GARDEN.

GRAFTING ROSES.

As the frost has killed or crippled not a few Roses, it may be intelligence as timely as welcome to not a few readers of THE GARDEN to learn that there is yet time to make good not a few blanks in beds or borders by grafting. January is better than February for this operation, but still there is sufficient time, and where stocks and scions are available not a day should be lost in setting about this interesting, useful, and successful mode of propagating Roses. It is needful, however, to take careful note of the scions. In grafting some Roses to-day (the 2nd of February) we found not a few of the most promising scions with the pith quite black. It is extremely doubtful if these will do much good. Some of the stocks, too—a sort sent us from Portugal some two years since—were killed to the ground, and even under it, though they were partially protected with leaves and litter. Probably the Brier and Manetti are the best stocks for nearly all sorts of Roses. We have tried many others, and among them the Boursault, Charles Lawson, Coupe de Hebe, Banksian, common Pink China, Gloire de Dijon, and the pink Gloire de Dijon or Glory of Bordeaux. Brier cuttings are probably better than seedlings, and are of course far better than Brier stumps, big or little, dug up or torn out of the hedgerows.

But perhaps it matters less, as far at least as immediate success is concerned, what stock is used than the condition of the stock. It ought to be at least a fortnight in advance of the scion. With all its juices in active motion and the more watery portions already expended, the stock is in a more taking condition than when it and the scion are started abreast in regard to time. When this is attempted the scion is not seldom washed off as it were by the rapid rush of the watery sap through the stock, and the first chance of a good union lost, there is no second given. Therefore it is a good practice to place the stocks in say a temperature of 60° for ten days or a fortnight before they are grafted. This is easily done, as the simplest way to graft Roses is to do so before potting them. For example: I expect several hundreds of stock Briers from cuttings and of Manetti; in a few days they will be pruned at top and bottom and laid in leaf mould in heat till wanted. The tops, cut down to within 4 in. of the roots, will be converted into cuttings. These do not strike so freely now as in November; still, put in firmly in light soil and a shady place, a fair percentage of them will root. The stocks will respond to the warmth at once, the tops lying to callus over, and fresh roots to spring forth. The smaller almost the stocks the better; from the size of a reed to one's little finger are big enough for any purpose. For whip-grafting the nearer in diameter the stocks are to the scions the better. This makes the matter of fitting more easy and of its taking more certain. The scions should not be taken off till wanted unless mild weather starts them into growth. But by grafting in January the dormant state of the scions is assured, and after the frequent touches of zero there will be little danger of Rose scions being too forward this February. Cleft and whip-grafting are the more generally adopted. Whip-grafting with a heel, or a sort of saddle grafting is the method I prefer. Equal half or quarter diameters are bodily removed alike from scion and stock, the base of the scion resting on the crown of the beheaded part of the stock, while the upper heel of the scion exactly fits on to the higher section of the same. When the two are of equal diameter the fit is perfect. Bark meets bark not along both sides only, but also at top and bottom; as from the inner bark the uniting cambium is produced, everything favours a rapid and complete union. But whip and cleft grafting are also very successful, and some would object to cutting

so far into the wood. Whatever method is adopted it is never wise to penetrate into the pith of the stock. This rather hinders than promotes a sound union, and is a fruitful cause of disease. Each mode of grafting owes very much of its success to rapid manipulation and a neat fit. The cuts must be clean on both scion and stock, and first cuts are nine times out of ten the best.

The moment scion and stock is ready fit and tie them tightly together, and either pot them at once or merely cover the roots and point of union with light soil until the two begin to unite. The scions can hardly be inserted too low, for the double object of preventing suckers and enabling the base to be so deeply buried that it may form independent roots for itself. The mode of grafting on the root stock rather than on the stem also saves the necessity of using clay or grafting wax; the earth sufficiently excludes the air to hasten the union between the scion and stock, while the entire sides of the uniting surface not seldom send forth roots into the earth. A temperature of 55° to 60° seems to suit newly-grafted Roses well. As soon as the scions have taken, the heat may be reduced, the plants being removed to a cold frame previous to their final planting out towards the middle of May; plants thus treated will make fine Roses before the autumn, and may even afford some good autumn flowers. There are other methods of root grafting, and also of grafting standards in the open air in March or April; but these do not come within the scope of this brief article, the purport of which is to show that the grafting of Roses in January, February, or March is a rapid and good method of propagating new Roses and keeping up or increasing our stock of old favourites.

D. T. FISH.

THE EXCRETIONS OF ROSES.

I WAS somewhat surprised to find this theory revived in Mr. Baker's most interesting article on Rose stocks, &c., in "The Rose Annual." Writing of the advantage of a change of soil for Roses, Mr. Baker, with his usual lucidity, adds for, "We know the roots not only absorb fluid from the soil, but they return a portion of their peculiar secretions back again to it;" and as if this were not sufficiently explicit, Mr. Baker adds, "This is why soil becomes deteriorated by species having long been grown in it, so that it will not support plants of the same species until the fecal matter deposited therein shall have been decomposed." The theory, like our good friend's Roses, is so pronounced and strong as to "hit one in the eye" and almost put it out. Still, the assumption we know is all a mistake. It arose, I believe, partly from attempts to carry analogies between animal and vegetable life to the extreme length of identical modes of nutrition. Roses simply exhaust the soil—not pollute or poison it; and seeing what such growers as Mr. Baker force their Roses to take out of the soil—so much size, substance, form, fragrance—the marvel is the earth is not exhausted sooner than it is. The colour comes from the sun, else the soil would probably be worn out all the sooner. We are all so much indebted to Mr. Baker for his teaching and example—personally, I have to thank him for his great courtesy in answering my questions—that I am sure he will pardon me for delivering him from the terrible nightmare of supposing that while his Roses are charming my eyes with their beauty above ground they are poisoning the earth beneath with all sorts of excretory matter. As the roots are as pure as the flowers and only empty the larder which Nature or art fills for them, the better it is filled and the more skill and loving care are exercised in keeping it full, the more beauty the Roses will yield and for a longer time.

D. T. FISH.

Best Stock for Marechal Niel.—None of your correspondents have mentioned the White Banksian as a stock for this Rose. I have seen the most enduring results from its use. I inserted a bud of Marechal Niel on it 12 years ago, and as yet it shows no sign of cankering. Five years ago I planted two White Banksians on the south-west side of the mansion here, to be budded afterwards with the Marechal; the buds have done well, and are now about 30 ft. high, the stock and scion swelling away at a uniform rate without any appearance of canker. These plants yielded us last year a grand crop of bloom. The Marechal on this stock does not grow with that extraordinary vigour for two or three years, which it does when on the Brier, but makes growth of medium strength, which is evidently the best. I planted a span-roofed house four years ago with three Marechals on the Brier, but as two of them were dying I removed them this winter; the one left is still vigorous. I intend planting at once two White Banksians, to be afterwards budded with Marechal Niel, and feel confident that the result will be satisfactory and lasting. Mr. Ewing, of Norwich, called here last season, when I pointed out to him the Marechal growing on the stock I have just named. He said, "He was so satisfied with the

uniformity of growth between stock and scion, that he would use it largely himself."—WM. ALLAN, *Guntton Park*.

THE GARDEN FLORA.

PLATE CCLXXI.—LILIUM POLYPHYLLUM.

IN furnishing a few notes to accompany the plate of this Lily, prepared from a plant which flowered here last year, I cannot do better than send the following extract respecting it from Mr. Elwes' monograph of the genus *Lilium*, in which he says, "This rare Lily, the only one of the Martagon group yet found in the Himalayas, is very little known at present. Discovered forty years ago by Dr. Royle, at Jaranda, in the province of Kunawur, it has since been gathered by several travellers in the western parts of the mountains, and though it has not been noticed in Nepaul, I have reason to suppose that it occurs in Sikkim, and even farther east on the frontiers of China and Thibet, where a plant which I believe to be identical was collected by the Abbé David in 1869.

"Of its native haunts we know but little, though a correspondent of Mr. Barr, at Mussouree, quoted in *THE GARDEN*, Jan. 24, 1874, says, 'It grows in good tolerably moist vegetable mould on a slope in thick shrubbery and flowers here in June at an elevation of 6500 ft.' It seems to have been first introduced to the Edinburgh Botanic Gardens, where it was raised, according to Mr. McNab, the Curator, from seed sent from Sikkim. I saw it here in fruit in October, 1873, under the name of *Fritillaria polyphylla*, and raised some of the seeds given to me by Mr. McNab, which enabled me to observe two curious facts respecting this species: first, that the germination is, in some cases at least, subterraneous—that is to say, that the cotyledon does not appear above ground, but, as in the case of *L. monodelphum*, the first sign of growth is a true leaf, the thickened base of whose petiole forms a minute scale; secondly, that the peculiar shape of the bulb may be distinguished in its earliest stage, so that a one-year seedling of *L. polyphyllum* cannot be mistaken for any other species whose development from seed I have watched."

Culture and Position.—I assure you that my reticence as regards Lily growing does not proceed from my having any secret in the matter; but, really, I have nothing further to communicate than is already well known. Sandy loam, peat or leaf-mould, sand, and charcoal, with a slight admixture of pulverised horse-droppings and good drainage under the bulbs constitute all I have to tell, and I think early staking and tying may have something to do with many, but not all, growing taller than they otherwise might do. I purchased two bulbs of *L. polyphyllum* in February, 1879, at Mr. Stevens' sale rooms, which were put into rather lumpy turfy loam, with an admixture of coarse sand and charcoal, with pulverised charcoal and silver sand immediately under the bulbs. Last year (1879) little progress was made beyond the throwing up of a slight stem in both cases. This year they flowered; one was sent up to the Floral Committee of the Royal Horticultural Society on 22nd June, and received a first-class certificate; the other was the one from which the annexed drawing was made.

J. MCINTOSH.

Dunnevan, Weybridge.

NOTES FROM CANNES.

THE weather here has been unusually severe for the past week or ten days, the thermometer on several nights registering 10° of frost (Fahr.), which is a very low reading indeed for this part of France; the mountains to the north and north-east have been covered with snow for a number of days, but none has fallen in the immediate vicinity of the town, which is surrounded by mountains on every side except the south, which is bordered by the sea. Passing through the vegetable market this morning, I was surprised to see Green Peas, the pods well filled, and of moderate size. Cauliflowers, Broccoli, Endive, and all kinds of salads are well grown here by the peasantry, who flock down into the town to dispose of their products at this season of the year, most of them owning a portion of land either on the mountain slopes or in the valleys. Since this has become such a fashionable place of resort during winter, especially for people from colder climates and from the north of France, the peasantry grow as many early vegetables as their space will allow, and they can now dispose of their products to the best advantage. The season commences about October, and lasts until May or beginning



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of June, when it begins to get unpleasantly hot for people who are not accustomed to the hot climate. On the sides of the mountains facing the south there are many sheltered spots which the peasantry turn to good account. Where there is a sufficient quantity of soil they build up rough walls, say every 5 yards or 6 yards down the incline, so as to get a level surface which gets the full benefit of the rains. The soil in this neighbourhood is of a stiff clayey nature, but sufficiently mixed with a kind of soft porous stone to make it work moderately well. Such things as Beet and long varieties of Carrots do not succeed well in it, and therefore they are not much grown. The principal Carrots are the Early Horn and Early French Forcing, which are very fine, clean, and of excellent quality. Gourds, which are brought in large numbers to the market, are extensively consumed by the inhabitants; they make a kind of soup, and also custards, which are considered rather a delicate dish amongst the working classes. Garlic is a root which is always saleable. It is used largely for flavouring purposes, and likewise eaten in its uncooked state for breakfast. Broad Beans are now just beginning to show flower, although greatly checked by the recent frost, but I think not sufficiently to do them any serious injury. Quantities of dwarf Peas not more than 8 in. high are in full bloom, and looking well in spite of the frost and bitter cold winds which have prevailed lately; in fact, with the same degrees of frost in England as we have had here, things of this description would have been entirely cut up. R.

NEW DOUBLE BOUVARDIA.

(ALFRED NEUNER.)

THIS is stated by Messrs. Nanz & Neuner, of Louisville, Kentucky, to be a profuse blooming and in every way excellent plant.



New Double Bouvardia (Alfred Neuner).

It is pure white, and said to be perfectly double. The flowers are rather larger than those of the single-flowering *B. Davidsoni*, from which it is a sport. They are composed of three perfect rows of petals, each floret resembling a miniature *Tuberoze*. The trusses are large and perfect and are freely produced, even on the small side shoots. Such trusses will be welcome to bouquet makers. Mr. Meehan, who has seen the flowers, writes as follows:—"We not had anything at hand for a long time so beautiful, and we have fancy it will have a run of popularity unexampled in floriculture." We should add that we figure it entirely on the raiser's responsibility.

Fuchsia procumbens in Fruit.—Although leafless this *Fuchsia* is far from uninteresting just now in several gardens, as the comparatively large fruits are freely produced and continue

on the plants the whole of the winter, giving them a somewhat curious, though attractive appearance.

SPECIALISTS.

IF the suggestion made in *THE GARDEN* (p. 84) in reference to this matter be carried out, it will be sure to interest many to whom the sight of a good plant, old or new, is an unfailing source of pleasure. There are few either large or small gardens in which some choice plants cannot be found; even in the smallest cottage garden this is often the case, especially as regards spring flowers. Quaint "Jack-in-the-green" Primroses of various colours, for instance, and many far less common plants. "Old-fashioned" gardens of somewhat larger size are pretty sure to contain many a good and often rare plant. Perhaps the worst of all places for herbaceous plants are gardens which contain thousands of bedding plants, but even in these by a diligent search in nooks and corners, some may be discovered which have escaped destruction, and even if not, there are generally many choice plants under glass in large gardens which have not been displaced by bedding plants. But though almost all gardens are worth seeing, a garden in which anything is made a speciality is certain to be full of interest; and amongst those who really care for flowers and their cultivation, a ready permission to examine their treasures is almost sure to be given to anyone who appreciates them. C. M. O.

— I herewith send the names of a few growers of "specialities," and trust that many others may from time to time send similar contributions to what may prove a very interesting corner of *THE GARDEN*.

Orchids.

Mr. Alexander Curle, Priorwood, Melrose.
Mr. John Russel, Falkirk.
Mr. John Gair, Falkirk.
Mr. C. J. Bolton, Carbrook, Stirlingshire.
Dr. Paterson, Bridge of Allan.
Mr. Smith, Brentham Park, Stirling.

Herbaceous Plants.

Mr. John B. Boyd, of Cherrytrees, Kelso.
Mr. William B. Boyd, of Faldonside, Melrose.
Dr. Buchanan White, Annat Lodge, Perth.
Dr. J. T. Boswell, of Balmuto, Editor of "English Botany," Kirkcaldy (a very interesting collection of herbaceous perennials, and of rare and critical British plants, Irises, &c.).
Bothwell Castle (Mr. Turnbull, gardener), near Glasgow.
Dr. Tuke, Balgreen, near Edinburgh.
Mr. P. H. Normand, Whitehill, Fifeshire.
Pitfour Castle, Perthshire.
Fingask Castle, Perthshire.
Mr. Duff, Fetteresso Castle, Stonehaven.
Sir John Campbell Orde, Kilmory, Argyllshire.

Ferns.

Mrs. A. B. Stewart, Rawcliffe Lodge, Langside, Glasgow (Filmy Ferns).
Mr. Edward Moir, Newport, Fifeshire (British Ferns).
Rev. John Pagan, Bothwell, near Glasgow (Hardy Ferns).
Mr. P. Neill Fraser, Rockville, Edinburgh (British and Exotic, and a considerable large collection of Filmy Ferns).
Mr. J. M. Barnes, Levens, near Milnthorpe, Westmoreland (British Ferns, including many unique varieties).
Sir Archibald Hope, Bart., Pinkie House, near Edinburgh (British and Hardy Exotic Ferns).
Mr. John Gair, Falkirk (British and Exotic).
Sir John Campbell Orde, Kilmory, Argyllshire.

Alpines.

Mr. Charles Jenner, Easter Duddingston Lodge.
Mr. Edward Moir, Newport, Fifeshire.
Colonel Drummond-Hay, Seggieden, near Perth.
Mr. John B. Boyd, of Cherrytrees, Kelso.
Sir John Campbell Orde, Kilmory, Argyllshire.
Mr. William B. Boyd, of Faldonside, Melrose.
Dr. Buchanan White, Annat Lodge, Perth.
Mr. John Donaldson, Newport, Fife.
Rev. John Pagan, Bothwell, near Glasgow.
Bothwell Castle, near Glasgow.
Mr. P. Neill Fraser, Rockville, Edinburgh (including a large collection of Saxifrage and Sedum).
Dr. Tuke, Balgreen, near Edinburgh.
Mr. George H. Potts, Lasswade, near Edinburgh (especially Saxifrage, Sedum, and Sempervivum).
Sir Archibald Hope, Bart., Pinkie House, near Edinburgh.
Mr. P. H. Normand, Whitehill, Fifeshire.

Earl of Wemyss, Dysart House, Fifeshire.
 Dr. Stuart, Chirnside, Berwickshire (also Show Auriculas, Hardy Primulas and Violas).
 Mr. Charles Watson, Dunse (especially Saxifrage and *Semper-vivum*).
 Dr. Douglas, Woodside, Kelso.

Miscellaneous.

Colonel Drummond-Hay, of Seggieden, Perthshire. A large collection of shrubby and bog plants.
 Earl of Wemyss, Dysart House, Fifeshire. A large collection of Rhododendrons (Mr. Clarke, gardener).
 Sir William Armstrong, Craigside, Rothbury, Northumberland. A very fine collection of hardy Heaths. F.

GARDENING FOR THE WEEK.

Hardy Fruit.—All arrears in pruning and nailing may now be brought to an end. Peaches and Nectarines, should, however, be kept drawn away from the walls until the buds become prominent, but not so much so as to render them liable to injury under the operation of rearrangement. These and Morello Cherries are generally left until last, and being so liable to the attacks of green and black fly, the washing of the wood with a solution of Gishurst Compound should be completed forthwith. The time is now approaching for placing some kind of protection over Apricots during the time they are in flower. In low-lying gardens it is the practice with some to retard the opening of the blossoms by letting down some kind of covering during bright sunshine, but judgment is required, as an excess of shade makes the flowers tender. Whatever material is used it should be arranged for removal from the front of the trees in mild weather. A very good protection may be secured by placing broad projecting boards on the coping stones and dropping therefrom two or more folds of fishing-net, which may be kept clear of the trees by means of light poles planted in the ground 3 ft. from the base of the wall. Materials of this kind do not impede light and air, are easily fixed, and do no injury to the trees. The best of all protectors are narrow glass lights in lieu of boards which should be ready for putting up when the first flower opens, but on no account should they be allowed to remain over the trees after danger from frost has passed away. If the pruning of Gooseberries, owing to the depredations of birds, has been deferred, it may be completed at once, and the trees may be dusted over with soot and lime, or, better still, they may be syringed with a thin wash of the same previously passed through a fine sieve to secure freedom from impediments to the use of the syringe. If fruit trees intended for grafting have not been headed back lose no time in the removal of the branches. Take off grafts and keep them in a cool shady place.

Peaches.—When the fruit in the early house begins to swell freely, disbudding will require attention. Commence at the extremities of the trees and remove the foreright and most forward shoots first, as they will otherwise rob the weaker growths near the base of the fruit-bearing shoots. If thickly set take off pendent and side fruit where those on the upper side will leave a good margin for the final thinning after the stoning process is completed. Old trees that have been weakened by hard forcing may now receive a little stimulating food in the way of top dressing with rotten manure and frequent sprinkling with tepid liquid from the tank. Syringe regularly twice a day when fine, using clear soft water free from lime, and see that every part of the wood is properly moistened, as owing to continuous firing it is more than probable that red spider will be in existence near the hot-water pipes. The minimum temperature may now range from 50° to 55° with a rise of from 5° to 10° by day from fire heat. Run up to 75° in bright sunshine with a circulation of air and close at 70° with a copious syringing.

Succession Houses.—The buds in these now swelling fast, and looking very strong, will soon require attention. If thickly placed on healthy trees, all pendent blossoms may be removed by drawing the finger down the lower sides of the shoots, as there is no danger of well ripened wood setting an abundance of fruit. Should the weather be very bright when in bloom, soften the atmosphere by lightly syringing the house and damping the floors, and on no account neglect fumigating just before the blossoms begin to expand. Ventilate late houses according to the period at which the trees are expected to be in flower, and see that the internal borders are properly moistened by repeated waterings before the buds begin to swell.

Figs.—Pot trees now swelling crops of fruit will require stimulating with rich liquid manure at the mean temperature of the house,

which may range from 60° at night to 70° by day when external conditions are favourable. Let forcing be carried on by the application of fire heat early in the morning in preference to keeping a high temperature at night. Syringe well twice a day and sponge the foliage with soapy water before spider has time to spread. Stop all strong shoots on pot trees at the fifth leaf and thin out useless spray, as Figs worth eating cannot be grown upon trees that are crowded with superfluous foliage. Trees growing in internal borders and having plenty of trellis room may be allowed to extend until the allotted space is covered; thin the fruit where thickly placed and keep the surface roots in action by means of good mulching and liberal feeding. Complete the cleaning and training of trees in late houses, admit a little light to those in unheated structures, but defer the entire removal of the covering until danger of injury from a return to very severe weather has passed away.

Cherries.—Although the weather has been much against them the blossoms in the early house will soon be opening. See that the trees are free from aphids, and to make secure from injury fumigate before they begin to expand. Impregnate on fine days when in flower. Keep the house moderately dry and airy, without producing a draught, and be guided by the state of the weather in the maintenance of the temperature, which may range from 45° at night to 55° by day when mild and a few degrees higher under bright sunshine. If any of the trees have been recently disturbed prevent exhaustion by damping the stems and main branches with tepid water. Look well to trees in pots; water thoroughly when necessary with clear, tepid water until after the fruit is set on vigorous growers, and use diluted liquid to others which have been forced for a number of years. If trees on the reserve wall have not been root-pruned get it done at once, as success the first year after taking them under glass depends upon keeping them abundantly furnished with fibrous roots.

Pines.—With suitable compost, crocks and pots in a satisfactory condition, the potting of successions may be proceeded with whenever the weather is favourable. I stated the other day that tan or leaves should be well worked and fermented in a dry shed ready for use, and despatch being so important at this changeable season, see that everything is in proper working order before any of the plants are disturbed. Having disposed of the late winter fruiters, the bed should be made good with all the most promising plants; but as these will not require potting, a few of the lower leaves may be removed preparatory to top-dressing with dry turfy loam, which must be firmly rammed round the collars of the plants. This step will set the succession house at liberty for the reception of plants that will make a growth before they start, and as some of these will require a shift, give Queens 11-in. pots and strong growers a size larger. Where Mushrooms are grown it is a good plan to save all the fibry parts of the sods, after beating out the fine soil for the beds, and to pot the plants in this without any admixture, save that of soot for keeping back worms and a little bone-dust. In the process of potting, ram firmly, replunge at once into a bottom heat of 85° to 90°, and give a little water to settle the soil about the roots. Dew the plants over with the syringe on fine days, allow the maximum temperature to range from 75° to 80° with sun heat, and 60° to 65° at night for the present. Plants which have been wintered in small pots must next be examined, and if the balls are matted, loosen the points of the roots and shift into pots that will not be too large to admit of another shift into the fruiting size later on. If they have not filled the pots with roots and the soil is in good condition, defer the potting until next month, as much mischief often follows the premature potting of Pines. Pot a few of the best suckers from winter fruiters, plunge in a sharp bottom heat, and defer watering unless the soil is very dry. Allow small and medium-sized ones to remain on the stools until March; meantime have a suitable bed prepared for them, and, if possible, give them the benefit of fermenting material charged with ammonia. Light and cleanliness being such important elements, every house should be thoroughly cleansed and limewashed.

Cucumbers.—Incessant firing throughout the month of January, a most trying ordeal for winter fruiters, will have favoured the spread of red spider, which must be checked now the weather is milder. If taken in time the best remedy is careful sponging of the leaves with soapy water or frequent syringing on mild evenings when the pipes are not very hot. Gradually remove old leaves and avoid overcrowding of young shoots which will now be pushing away freely. If mildew shows signs of spreading look for the cause in a languid bottom heat or imperfect ventilation. Apply sulphur as a remedy and prevent its re-appearance by renovating the fermenting material about the roots, careful attention to ventilation at the bottom of the pit, and high cultivation. Give a little air at the apex to sweeten the atmosphere when the sun raises the temperature to 80°. Syringe rather more freely as days increase in length, and give an abundance of atmospheric moisture by damping every available space after closing.

Frames.—As many people prefer prickly Cucumbers for summer use, a few seeds of some favourite kind sown now will make nice plants for turning out in March. Beds made up in January will now be fit for planting with the most forward plants hitherto kept in the nursing pit. Let the soil form a ridge along the centre and plant at regular distances, make very firm and give a little water to settle it about the roots. Cover every part of the manure with dry, turfy loam to keep down steam, and always leave a little air on at night to prevent an accumulation. Stop the plants as soon as they have taken to the soil. Keep them free from male blossoms and train one Vine towards each angle of the lights. See that a good supply of dry loam is kept in an open shed, and have a quantity of fermenting material always ready for an emergency. The same vigilance applies to the covering, as early Cucumbers, like all tender exotics, suffer more from sudden depressions than they do in bad weather, when every effort is made to keep them in a steady temperature.

Kitchen Garden.—It is by no means unlikely that the severe weather will have left many gaps in this department, preparations for the filling up of which must have immediate attention. First in the list stand the early Peas, at all times precarious when sown in the autumn. To replace them sow at once in pots, boxes, or turf, and while giving gentle warmth see that they have plenty of air as soon as they show through the soil. Take advantage of an early opportunity for sowing successional crops of second early kinds, and protect others coming through the soil by placing sticks longitudinally over the rows. In cold wet gardens the sowing of small seeds will have to be deferred, but where borders lie well to the sun Dutch or Strap-leaf Turnip, early Horn Carrot, a good breadth of round Spinach and Radishes may be got in by placing boards on the soil to prevent treading. A few early Potatoes may also be planted along the front of south and west walls, where the protecting material placed over fruit trees will shield them from spring frosts. Trench out the remainder of the crop of Parsnips, and make provision for sowing for the current year. Stir the soil amongst autumn-planted Cabbage and Lettuce, make them firm where loosened by frost, fill up vacancies, and dress between the rows with quicklime or soot. Autumn-sown Cauliflowers which have been wintered in cold pits may be planted under cap-glasses on warm, heavily-manured borders. Place nine plants under each light, remove four in March to the open space between the glasses, leaving five of the strongest which mulch and water: Prick out in cold frames the first sowings of Brussels Sprouts, Lettuce, and Autumn Giant Cauliflower. Observe that none of the latter are blind, no uncommon occurrence when sown very early or late. The most satisfactory mode of raising plants of these kinds, as well as Celery, is to make up a temporary hotbed, sow the seeds thinly, and place old lights or other slight protection over them until strong and fit for pricking out.—WM. COLEMAN.

THE LIBRARY.

DENDROLOGIE.*

A GOOD complete work on hardy trees and shrubs is very much wanted in this country, but such a work would involve an immense amount of labour, even to a person well acquainted with the plants themselves and the existing literature thereon. On first opening Mr. Lauche's book it gave us the impression of being a useful one, and so it will undoubtedly prove to those possessing even a moderate knowledge of the German language; but a slight examination brings to light the fact of its being very incomplete. Its incompleteness is not due to the exclusion of species tender in Germany, though hardy in this country, for numerous species are included that require protection in Germany, and many that are not hardy in England. Why such genera as *Yucca* and *Cistus* are omitted, when *Fatsia japonica* and *Ceanothus* are included, is inexplicable to us. *Aucuba japonica* is figured and briefly described, and the author is satisfied with the bare statement that about thirty varieties are cultivated in gardens, whereas the varieties of the less hardy (with us) genus *Ceanothus* are characterised. Only twelve varieties of Holly are mentioned, and to the tender *Acer palmatum* and its varieties as much space is devoted as to *A. platanoides*. These inequalities and inconsistencies are faults that strike one on a superficial examination of the book; what the descriptive part way be worth cannot be ascertained without actually using the descriptions. But the woodcuts we may safely assert will prove the most useful feature of the work. Yet it seems quite superfluous to figure such familiar trees and shrubs as the common Holly, the Plane-leaved

Maple, common Ivy, common Beech, the wild Guelder Rose, Elder, Hazel, Hornbeam, Gooseberry, and dozens of other common things, when figures of exotic species would have been much more useful. The figures are mostly very good and of natural size, but some of the analyses of the flowers and seed-vessels are not well executed. In nomenclature, Mr. Lauche has followed the late Professor K. Koch, who did much in his rather too cumbersome "Dendrologie," to elucidate the synonymy of hardy trees and shrubs; and he has followed him blindly, copying some very singular errors into which the former fell. Thus at p. 12 Lauche says, "The family of the Cæsalpiniaceæ has no indigenous representative; *Gymnocladus* and *Virgilia* are of North American origin, *Gleditschia* occurs in America and Asia." The family of the Papilionaceæ offers few trees; *Cercis Siliquastrum* alone is indigenous," &c. Now *Virgilia*, or rather *Cladrastis*, for *Virgilia*, as usually understood, is confined to South Africa, belongs to the Papilionaceæ, and *Cercis* to the Cæsalpiniaceæ, which family it usually represents in the class-room. On referring to Koch's work we found the same transposition. *Hedera hibernica* is called Scotch Ivy in Lauche; but Koch, we find on the authority of Shirley Hibberd, was not altogether wrong in stating that it is known as Scotch Ivy in some gardens, though we never heard this name applied to it. Another slip shows how difficult it is to work without a good library or without using that library. *Acer barbatum* (Michaux) is enumerated as a variety of *A. rubrum*. Years ago Torrey and Gray ("Flora of North America") explained that this was a spurious species, as they had ascertained from Michaux's own herbarium, founded upon the flowers of *A. saccharinum*, the fruit of *A. rubrum*, and the leaves of another species, probably of *A. spicatum*. One or two more errors may be pointed out, because the work professes to be descriptive rather than a planter's guide—only forty-one pages are devoted to geographical distribution, formation of a nursery, propagation, pruning, planting, &c. At p. 122, in the definition of monocotyledons, it is stated that the one cotyledon remains underground in germination; whereas, as in dicotyledons, in some the cotyledon (or cotyledons) remains underground, in some it appears above ground. At p. 36, in the directions for budding, raffia fibre is alluded to as the product of a species of *Fucus* (a seaweed) instead of a species of *Sagus* (a palm). And in the directions for budding the old method of a T incision is the only one taught. Having pointed out some of the defects of this work, and shown that it is not a high class book, either from a botanical or a horticultural point of view, we wish to repeat that it contains much useful information for amateurs and young gardeners; and we hope that the author's desire that he may be able to publish an improved addition may be realised.

W. B. HEMSLEY.

Modicus Cibi, Medicus Sibi, or Nature her own Physician.*—This is a little book containing a reprint of a couple of sermons, the object of the book being the inculcation of the valuable lessons, simplicity of life and temperance in food and drink. There are signs that the agitation in favour of a simpler and more natural food is spreading from a few unregarded enthusiasts among men of light and leading; in fact, the British dinner-table, the most venerable and respectable of our institutions, is to be attacked, and without mercy. Drink and Tobacco are only partial evils; the materials of the butcher and the cook are considered even greater. The body is declared to waste half its force in trying to get rid of the unwholesome stuffing it too frequently receives. Well, whatever we may think of this campaign, everybody admits that the use of meat is excessive in our country, as it is in others, and the more attention is called to the products we get direct from garden, orchard, or field the better. So far as we have noticed, the advocates on this side of the question seldom know the extent and variety of the material which they may call up by the aid of the art of gardening. The above book was sent to us from the *Dietetic Reformer* office at Manchester, a little journal that is doing very good work in this direction.

ANOTHER book in the same direction, considerably older than the preceding one, but written with greater deliberation, is Sylvester Graham's "Lectures on the Science of Human Life," which is published at the office of the *Dietetic Reformer* and also by John Heywood, of Manchester. This is an abstract of a very able and curious book which goes into the whole question of human food and human nutrition and habit, and displays in every paragraph the remarks of a singularly acute and clear understanding. It is a classical work with food reformers, and certainly merits that distinction.

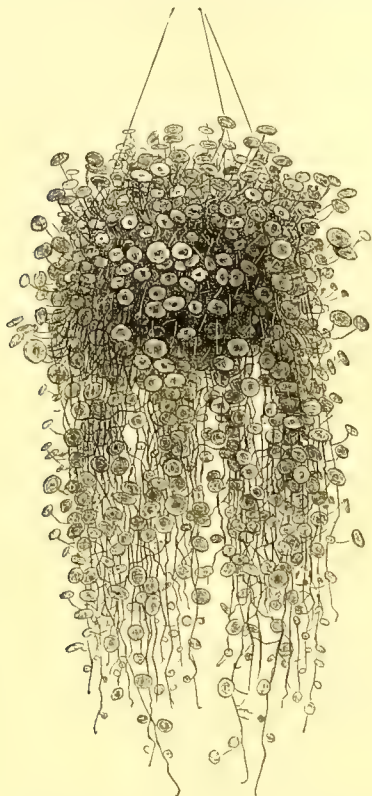
* "Deutsche Dendrologie," von W. Lauche, Lehrer des Gartenbaues, &c. 8vo, pp. 727, with 233 woodcuts. Berlin: Wiegandt, Hempel and Pavy. 1880.

* "Modicus Cibi, Medicus Sibi, or Nature her own Physician." By JOHN E. B. MAYOR, M.A., Fellow of St. John's College and Professor of Latin in the University of Cambridge. Cambridge: Macmillan & Co.

THE GARDEN IN THE HOUSE.

THE PENNY-WORT AS A BASKET PLANT.

WE like to see apt use made of our native plants in the garden; but seldom have we seen one in every way more elegant than the common Penny-wort (*Hydrocotyle vulgaris*), brought to our office by Mr. G. McIntosh, grown as a basket plant, as shown in our illustration. The habit was singularly graceful, and quite different from any we have seen the plant before display. He happened to notice a little seedling of it among some potting soil, and, placing it in a basket to take its chance, in three or four months it became a well-furnished specimen. After the first year it requires cutting down, and will then push out freely in the spring. Among other British plants that are suited for basket culture are the Bird's-foot Trefoil (*Lotus*), the Cornish Money-wort (*Sibthorpia*), the common



Marsh Penny-wort (*Hydrocotyle vulgaris*).

Money-wort, the Ivy Toadflax, the bog Pimpernel (*Anagallis*), and the Ivy Hairbell (*Campanula hederacea*), which last forms a singularly elegant, if fragile plant, grown in a cool, moist house or pit.

PLANTS FOR FURNISHING.

THE destruction of plants in some establishments where they are used for furnishing the mansion or large cold conservatories is so great during winter as to tax the resources of the garden to the utmost as regards rearing and getting them up, but by making a proper selection and avoiding the use of tender subjects at this season much loss and disappointment may be saved, as there are many beautiful plants that will stand almost any amount of cold and rough usage.

Palms.—The most striking for house decoration are the different kinds of Palms, several of which are hardy, or nearly so, and others will bear without suffering a temperature ranging anywhere between 40° and 50°. *Chamarops Fortunei* has stood out here for years, and although the frosts have been very severe just lately, not a leaf, so far as can at present be seen, is discoloured or injured. The character and general contour of this species render it peculiarly adapted for the embellishment of front halls or staircases where a pair, judiciously placed, have always a striking effect; single plants of this and others likewise come in well for forming the centres of

groups. The *Phoenixes*, too, such as *P. dactylifera* and *reclinata*, are useful for this purpose, and from their opener and more spreading fronds they present an easy and elegant outline. The best Palm in this respect is *Areca lutescens*, the foliage of which is of a very pleasing pale green, and the leaf-stems yellow or straw-coloured, but to be safe and do well, it is necessary for this kind to have a degree of heat not lower than 50°. *Areca sapida* is a strikingly ornamental Palm that bears a greenhouse temperature well, and *A. Baueri* is like it, but grows much larger and stronger. *Latania borbonica* is another well known kind, which, although a fast grower, if potted and freely treated, may, by being cramped at the roots, be kept small for years, as may also most of the others, as all they require to maintain them in health is plenty of water and an occasional soaking with liquid manure. *Kentia Fosteriana*, *australis*, and *Belmoreana* are likewise of bold type, and sufficiently hardy to succeed in a greenhouse. Amongst Cycads the most desirable are the *Encephalartos* and *Macrozamia*s, which had singular looking trunks or caudex and leaves, remarkable for their division and beauty. With a dozen or so of any of the foregoing and other plants that I will name hereafter there is always something durable to rely on and form the backbone, as it were, of a group.

Ferns.—Next to Palms in point of usefulness come some of the larger and hardier of the greenhouse Ferns, especially the arborescent kinds, which in a young state are very effective associated with Cycads and the other plants just named. Although Tree Ferns when they attain size and have trunks are dear, seedlings of the same sorts may be had at a reasonable rate, and these are the most desirable for furnishing. *Dicksonia antarctica*, *Cyathea medullaris*, and *Cibotium regale* are the best, and besides these there are several other large growers that are almost equally striking, one of the finest being *Balanium Culcita*, which has long stalks rising from a densely hair-covered crown, and bears spreading, smooth, bright shining green fronds that are very attractive. Coming to the smaller section, there is *Pteris argyrea*, with its fine variegated fronds that show up in such pleasing contrast with Palms and other fine-foliaged plants, and *Cyrtomium falcatum*, another Fern which is always admired, standing out as it does among Ferns as conspicuously as the Holly among evergreens. In many positions this kind is quite hardy, and from having such thick glossy leaves it does well in rooms, as it is unaffected by dust and the variation of atmosphere which there takes place.

Fine-leaved and Variegated Plants.—*Aralia Sieboldi* is a capital house plant, so enduring that it will live and keep its beautiful dark green colour for weeks almost in the dark, as will also *Imantophyllum miniatum*, which is one of the most useful plants anyone can cultivate, as besides having such good foliage, its large heads of Lily-like orange-coloured flowers sent up early in the spring are strikingly beautiful and last a long time in perfection. Another plant that will stand almost any amount of hardship is the *Aspidistra lurida* and its variegated variety, both of which struggle on bravely even when the air is so impure from gas that nothing else in the plant way will live. In the Westminster Aquarium and our London house windows it forms quite a feature. *Ficus elastica* runs it close and generally shares with it the honours or misery, as the case may be, and were it not for these two well-known plants, many would not have a green leaf in winter to cheer them. I do not know whether the New Zealand Flax has been tried in the same way, but I should think it would be equal to either; at all events, it is one of the best for large conservatories, halls, or corridors and for assisting in forming bold groups. The variegated varieties of this are remarkably fine, but as they cannot be got from seed they are scarce and dear, as they can only be increased by division. The normal type, however, can be raised readily from seed, and make good plants at a year old if sown early, so as to give them a long season's growth. *Grevillea robusta* and *Acacia lophantha* are both elegant habited plants, almost or quite as handsome and ornamental as Ferns. *Dracæna australis*, again, is another serviceable plant either in a large or small state, and, being distinct both in habit and outline, gives character to any group or arrangement in which it forms a part. To lighten up masses in the absence of flowering plants there is nothing so striking as variegated things such as *Coprosma Baueriana variegata*, the leaves of which are most beautifully marked with rich creamy yellow, and so glossy as to look quite polished and bright. *Yucca aloefolia variegata* and the variegated *Aloe* are two exceedingly useful plants and both very tenacious of life, the latter especially, as being succulent it will exist the greater part of the year without water and only requires a small modicum of soil to grow in. *Euonymus latifolius variegatus* is so good as to be quite deserving a place in the best collection in any conservatory, as it has fine leaves and is richly and beautifully marked, as is also *Eurya variegata*, which, like the *Euonymus*, is nearly hardy, but to have it in good condition it requires the protection of glass. With such plants as those just enu-

merated, it will be seen how independent one may be of those of a more tender character as regards winter furnishing, as there is plenty of variety and diversity of character among them, and by introducing a few flowering subjects as they come in from time to time, quite a fine display may be maintained.—J. S.

RHEEA PLANT.

(*BOEHMERIA NIVEA*.)

FEW cultivated plants of economic value possess such an ornamental character as this Nettlewort, which is a small shrubby plant from China, growing 3 ft. or 4 ft. in height, and furnished with large heart-shaped leaves of a deep green colour on the upper surface and covered with a dense white down on the under sides, giving them the appearance of frosted silver, and thereby affording a fine contrast with the green colour. As is the case with most plants of the Nettle family, the flowers of this are very inconspicuous.



Rhea Plant (*Boehmeria nivea*).

ous, being small and of a greenish hue. It may be said to be hardy, provided it is treated as a herbaceous plant, that is, have the stems cut over every autumn, and perhaps a small layer of ashes or other protective material placed on the stool in order to save the roots from the ill effects of excessive cold, but if planted against a wall this precaution is unnecessary. It is largely cultivated in China for manufacturing a beautiful fabric known in this country as grass cloth.

W. G.

Mistletoe, it will have been noticed, is partial to certain localities. This arises more from soil than anything else, for where it abounds the land is generally heavy, and in such districts it is not particular as to choice of trees, as it may there be seen on the Thorn, Crab, Lime, and Apple, and occasionally on the Oak. Where it takes to orchards its baneful effects are soon apparent in the stunted look which it gives the trees on which it fastens. Nevertheless, many like to see it in their grounds, and this they may do by getting berries and placing them on the bark of an Apple or Thorn where they wish it to grow. The seeds must, however, be ripe, which they are at and after this season, and if the birds have left any, they should be put in the crevice of the bark of a young healthy branch. Besides being propagated in the way just adverted to, Mistletoe admits of being increased by grafting, which should be done in April, by inserting small pieces with portions of the bark of the tree attached from which the grafts have been taken. The

thing is to secure them firmly in position after having made them fit properly, when a union will soon take place. Young trees with Mistletoe on them may be purchased, and deserve a place in the pleasure garden, where they can be seen and admired.—S. D.

FRUIT CULTURE FOR PROFIT.

Training.—As regards orchard trees, the best shape is the one the trees assume naturally, which in most varieties is a round, branching head, somewhat inclining to the conical form; and the object of the pruner in the early career of the tree should be to create a well-balanced head, with special regard to the natural habit of growth. If the right means be adopted, it is as easy, without any undue use of the knife, to secure handsome trees as it is to spoil them. Supposing the cultivator has arranged in his own mind the kind of tree he wants, the head must be cut back more or less in order to secure a sufficient number of branches to lay the foundation. If the trees were maidens—that is, one year from the graft—they should be cut back to four or five buds; if two years worked, they would, as a matter of course, have been cut back the previous year in the nursery. The only object of cutting back a young tree is to secure a foundation; and the moment that object has been obtained, hard pruning should cease, and should be confined to thinning out badly-placed and weakly shoots. The proper time to cut back young trees is in spring following the planting—that is, if the planting has been done in November, as it should have been. When the sap begins to rise is the best time to prune, cutting back to a bud pointing in the direction the branch should take. After the trees are fairly established no leading shoot should be cut back unless some special cause demands it. Though the attention which standard trees require is not much, yet what little is necessary should be afforded them annually, always bearing in mind that cutting out a small branch does not leave so large a wound, and has a less disturbing effect upon the forces of the tree than removing a large one. The main object of both pruning and training should be so to regulate growth that every part of the tree shall have its due share of air and sunlight. Whenever it is necessary to cut back a tree to obtain a better furnished base, the operation should be performed in March, or when the shoots break. Attention should be paid to thin out the surplus and badly placed growths that will push in excess of what may be needed from the point where the branch or branches were severed. As regards dwarf trees on Crabs or free stocks, such as are commonly planted in kitchen gardens, they too must be cut back more or less to secure a well balanced tree. A careful pruner will make handsome specimens simply by cutting to a bud pointing in the direction the branch is required to take. But if great exactitude of training is necessary some mechanical means must be adopted. A hoop placed in the centre, and the branches tied to it at equal distances apart, is one way, or stakes may be employed to lead the young shoots in the right direction. For all practical purposes, however, the knife intelligently used will suffice. Apple trees on the Paradise stock require but little pruning, and that little should be mostly done in summer, and should consist mainly of thinning the young shoots where too thick or by stopping one that seems making an effort to obtain more than its share of the sap, and so taking the first step for destroying the balance of the tree. The pruning and training of espaliers is a simple matter. If maidens—trees one year grafted—are planted they must be headed back to the bottom wire. If trees one year trained are selected, they will have one pair of shoots which should be tied to the bottom wire. The central leader should be pruned back to the second wire, at which point a couple of shoots should be selected the next year to occupy that wire, whilst the leader will be advanced a stage to the third wire, and so on till the trellis is furnished. The leading shoots should not be shortened till they meet their neighbours on each side, when of course they must be stopped. Horizontal training is well adapted for Apples and Pears, and these fruits are especially suitable for training on espaliers.

Summer Pruning.—I do not think the importance of summer pruning and the advantages which it confers when moderately and rightly done are sufficiently appreciated, except by good cultivators. Some do not prune at all in summer, but cut back all the summer shoots in winter, and then complain that their trees are fruitless, and are obliged to resort to root-pruning to restore their fertility,

which indeed ought not to have been suffered to depart. Others take quite an opposite course, pinch and cut every bit of green short back to so many leaves as soon as they are made—in fact, scarcely permit the trees to make any progress at all. Trained trees, in order to keep them within their allotted space, must submit to a certain amount of pruning, and summer is the proper time in which to do it. When a tree is permitted to make all the growth it can in summer unchecked, and that growth is pruned off in winter, a very few years will destroy its balance and make it fruitless, when nothing but pruning its roots can put matters right again. But the opposite course of constantly nibbling at a tree all summer is even worse, for it results finally in the tree being crippled or worn out. When a tree ceases to make or is prevented from making a reasonable annual growth the vital principle is weakened, and it is unable to bear fully developed fruit, and ultimately it dies from exhaustion. The leaves are the most important organs which plants possess; without them there would be no flowers or fruit, and no advance at all in growth. They elaborate the sap, which is pumped up from the roots in a crude state, and though it is necessary they should be present in sufficient numbers to carry on such work, yet if they are too numerous—if each cannot have its fair share of light and air—then action is impeded, and the work is ill done. One good stout leathery leaf is worth more than two or three thin weakly ones for the particular duties which leaves have to perform. Then it must be borne in mind that not only does each leaf perform, in conjunction with its fellows, the combined work required by the tree, but it has also a special duty assigned it—that of catering for its own particular bud, which is snugly situated at its base, and which may perhaps be developed into a truss of flowers if properly matured. Permit a tree to carry all the leaves upon which the sun can shine and it will be well with that tree, but let that limit be much exceeded and something must go wrong. If the leaves crowd each other the result is all will be injured and weakened, and the buds in the reaction which will take place will lose form, and instead of producing blossoms and fruit develop only in the shape of leaves and soft young spray; therefore, instead of saying pinch or cut to so many leaves, I say keep the growth thin in summer; let sunshine stream in upon every leaf, which should be allowed to feel the motion of the air, but at the same time do not over-pinch. Leave the tree sufficient force to carry on the work, and do not be in too great a hurry in spring; let it just feel the impetus of the rising sap before beginning to pinch.

Winter Pruning.—It has never yet appeared clear to me that winter is the best time to prune fruit trees, so far as the trees themselves are concerned. I am thinking more especially of the thinning of orchard trees when necessary. There would be, I think, some advantages in doing the work in summer, as when the leaves are on the trees one has a better guide as to the amount of thinning required. Of course the work could not be done when the trees were loaded with fruit, but advantage might be taken of a fruitless season, or the pruning might be done in autumn, after the fruit is gathered, but before the leaves fall. However, pruning in winter, when other matters are less pressing, answers fairly well. In pruning orchard trees where thick branches have to be cut out, they should be cut close up to the main branch, and the wound smoothed with a knife, and left in such a manner that no water can lodge on the wounded surface; but it is only where trees have been neglected that large branches will require removal, unless in the case of old trees. In pruning, the outside branches should be thinned, to give the sun a chance to reach the interior, so that the fruit may be equally dispersed, and not all found only at the extremities of the branches. As regards trained trees, both dwarfs and espaliers, when the summer pruning has been properly carried out, there will not be much to do in winter. The spurs left by the summer pruner must be shortened if too thick, and some may require cutting clean away; the same thing may happen with respect to a few old spurs here and there if too thickly placed. Of course all dead snags must be cut clean out, and the leaders, in the case of trees that have reached full size, should be shortened back.

Root Lifting and Pruning.—I believe it to be impossible for a tree with its roots deep in the ground to be fertile. The more one thinks and studies the matter over, the more is one struck with the simple, but beautiful, manner in which all things pertaining to the vegetable kingdom are arranged. We see a tree, by injudicious pruning, producing a larger leaf-surface than is

necessary or desirable to meet the steady requirements of fertility when confined to a circumscribed space. The usual result follows; one error leads to others, until the whole system of the tree is out of order. In the foliage of the tree the cultivator has the key to its well-being; it gives him, in fact, absolute control over all the other portions if he knows how to use it. It is the leaves that apply the stimulus to the roots in spring; and when the days lengthen and strong light and warmth increase, the evaporation from their surface is greatly increased; the messages they send down to the roots become more urgent, and, thus pressed, the roots rush down deeper and deeper to find the water which the leaves are so wantonly dissipating. I have thus briefly endeavoured to describe the chain of circumstances that usually leads to the necessity for root-pruning. If the roots, or a good portion of them, could be kept near the surface, there would be no need for pruning them, but when once they are down they must either be lifted to the surface, or be cut off. There is no doubt, I think, that root-lifting is better than root-pruning when it can be carried out, and it can be in the case of all young trees or trees not too large to transplant. In lifting or transplanting a tree always begin far away from the stem; nothing is worse than working in too small a space. Let the operator give himself room to strike out, and the work will be done both better and quicker. The roots of a tree that is too large to transplant may be lifted by instalments, so to say—half one year and half the next. It takes up more time than simply cutting the roots off, but its effects are better, as it brings the roots up and makes them assume the desired direction; whereas cutting them off simply checks, but does not alter their downward course, unless they are cut near their source, and that implies a risk of crippling the tree. The majority of root-pruners simply open a trench from 3 ft. to 4 ft. from the trunk of the tree, according to its age and size. The trench is driven down till it gets below the roots, and is turned inwards towards the tree to undermine and cut the tap-roots, which descend perpendicularly. As a rule, half round the tree will give quite check enough for one year. The other half can be pruned the first or second year following. If the tree is old, and the soil more or less exhausted, much good will be done by bringing fresh soil to fill up the trench, scattering the old soil over the vegetable quarters. The new soil will encourage the roots of the tree to ramify and fibre out nearer home, so to speak, than hitherto. I have root-pruned fruit trees in summer, and if done carefully it answers well and a season is gained, but in October, after growth has ceased and the wood is firm, is the best time for those who have not made the subject a special study. There is then still sufficient action in the foliage to cause new roots to break out before winter sets in.

Renovating Old Trees.—All things come to an end, and to this rule Apple trees form no exception. They are, however, often condemned whilst there is yet a long period of useful, vigorous life in them if properly treated. If a tree be sound at the heart, the moss-grown trunk and limbs can be scarified and dressed with quicklime, that will kill the moss and renew the bark. At the same time the dense thicket of branches can be thinned to let in the sunshine, the exhausted earth taken from over the roots, and a good thick coat of rich manure added. But it must not come into contact with the roots. Exhausted trees need at times a strong stimulant to recuperate them after years of hard work, during which time everything the trees have borne, even to the leaves, has been taken away, and nothing brought back in exchange. Poverty in the soil is certainly a chief cause of decrepitude and barrenness, and the fruit that trees in such a condition bear even in a good season partakes of the scrubby, blotched, worn-out character of the tree. The average length of life of people, both in town and country, is advancing in consequence of their getting better food and having improved sanitary arrangements, and the same result would follow in the case of fruit trees if their wants were better attended to than they now are. In the renovation of old trees, the first thing to be done is, as I have said, to thin out the wood, so that the sun can look in and dry up the green slimy moss that in many cases covers the branches. Other benefits will also follow, such as better foliage, stronger wood, and cleaner and healthier fruit. But this thinning or pruning must not be done rashly; only some of the most badly-placed branches should be cut out the first year. Newly-slaked lime should be sprinkled freely among the smaller shoots when they are damp; to the trunk and main branches it

might be applied with a brush in a thick, semi-fluid state, and after the head has been trimmed and dressed the roots should be bared and their wants supplied in the way already indicated. More thinning might be given to the branches the second year, and a little annually afterwards will keep matters right; the lime dressing might also be repeated if necessary. Moss on fruit trees is sometimes an indication of too much moisture in the land, and a consequent necessity for drainage. This should be ascertained and the defect remedied. I have sometimes seen old Apple trees restored to vigour by cutting off their heads and allowing them to break again right away from the trunk. This remedy is generally speedy in its action—it either kills or cures. If the tree is sound and not too old it will shoot afresh with great vigour and become like a young tree again, but if not it quickly dies. There are, however, thousands of useless old trees in the country that might with advantage be put to this test, as the loss would not be great if they died. Young fruit trees should never be planted on the site from which old ones have been removed.

Thinning the Fruit and Mulching.—Few people attempt to thin Apples; indeed it would hardly be possible to do so in the case of large orchard trees. The consequence is whenever a really favourable season comes, and every Apple that sets remains to swell, the fruit is not only inferior in quality, but the trees are frequently seriously injured. Sometimes when dry weather sets in the crop gets naturally thinned, and even when this does not happen, though it might not be possible to thin the fruit, it would not be much trouble to mulch the trees. This might be done even with trees on Grass; a good dressing of rotten manure spread under the trees, nearly as far as the branches extend, would be of immense benefit, and dry weather should not be waited for; on the contrary, let every tree carrying a heavy load be mulched by the end of June or beginning of July. The manure would not injure the Grass, as it would soon mellow down, the Grass would grow through it, and the manure or the essence of it would be washed down to the roots and help to keep up the stamina of the tree at a time when some extra support was much needed. The fruit on all trained trees might, indeed should, be thinned whenever the crop is too heavy; this if regularly attended to would be one means of maintaining the trees in a constantly fertile condition. Of course in thinning the smaller and inferior fruits only should be removed, and the best time to perform the operation would be, in average seasons, about the end of June or beginning of July. The mulching should under no circumstances be neglected, as it not only benefits the present crop, but helps to keep the feeding-roots near the surface, and this is a matter of primary importance.

Stocks and Grafting.—The best stock for orchard or other trees that have plenty of space for development is undoubtedly the Crab, and for weakly-growing Apples the stock should be run up standard high before they are grafted, as this insures a strong stem, and gives increased vigour to the head. The free stocks obtained from Apple pips are also largely used in nurseries, and as they vary much in strength the strongest are generally selected for standards, the second size for espaliers, and dwarfs and the smallest of all are often used as dwarfing stocks, and have, in a measure, the same effect upon the Apples grafted upon them as the Paradise stock. The selection of proper stocks, however, requires great practical experience; but one thing may be positively stated, viz., that a strong stock does infuse vigour into a tree, and that a weak one with a tendency to make roots near the surface does induce early fertility with less freedom of growth. The Paradise, so called from its real or supposed origin in Armenia, is a low, dense bush, readily increased by cuttings or layers, and for some situations it is a valuable stock, especially in cold, ungenial places where Apples on the ordinary stock do not thrive. It forms an excellent stock for pot culture, and though some who live in districts where the Apple tree assumes giant proportions may be amused with the idea of growing Apple trees in pots, yet it is not so absurd after all if they cannot be obtained in any other way, and the fruit from these little trees, when well fed, is always fine in quality. A hundred of them might during the time of blossoming and setting be placed in a very small house, and after all chances of frost were gone a good part of them might be plunged outside in some sunny corner to develop and ripen their fruit. There will always be those amongst us who would rather eat fruit of their own growth than

buy it, even if purchasing was the most economical plan, and Apple trees in pots enables the dweller in the bleakest and most ungenial situations to accomplish his desire. Then imagine the display which these little trees make when in flower; even the *Camellia* itself scarcely rivals them. Of course no one expects these little dwarf trees to be so long-lived as if they were grafted on a stronger, deeper-rooted stock.

Whip Grafting.—There are many different modes of grafting, but only two need be mentioned here, as they supply all that is needful in ordinary cultivation for the propagation of fruit trees in this country. What is termed "whip grafting" is the method commonly adopted in nurseries. It is so simple that anyone with a sharp knife can soon learn to do it sufficiently well to insure a good union, and dexterity will come with practice. In nurseries most of the fruit trees are grafted near the ground; the stocks are headed down by an oblique cut; a slice is cut off one side; the scion is cut in a corresponding manner, so that at least the inner bark of one side of the scion can be joined to and meet the inner bark of the stock; without this there will be no union. Tonging is commonly adopted with whip grafting; a downward cut is made in the stock, a thin slice is taken out, and a similar cut is made in the scion, so that when the two are brought together the tongue or lip of the scion just fits into the incision made in the face of the stock. If neatly executed it may perhaps add to the chances of the graft growing, but it takes time, and if well fitted grafts will grow without tonguing. When Apples are grafted low down and well tied in with soft matting, if a ridge of earth be raised on each side, so as to cover the point of junction well up and keep the air from the wounded parts, there will be no necessity to use either clay or wax. If the air be kept from the part operated on it matters not how it be done, and a ridge of earth raised along the rows answers admirably. Of course the grafts should be tied in and the earth raised at once, i.e., as soon as the grafting is done, and if much has to be done, the two operations should go on together.

Crown or Rind Grafting.—The other kind of grafting to which allusion has been made is called crown or rind grafting, and is only adapted for large trees. It is the simplest and most certain method of grafting with which I am acquainted. Supposing we wish to put a new and better head on a large tree, we cut the branches off within a short distance of the trunk, make the cut horizontally, trim its face smooth with a sharp knife, and put in two or more grafts, according to the size of the stem. It is a good plan to put in enough, as if too many grow it is easy to thin them out. Insert the grafts by making an upward cut in the bark about 3 in. long and just through it. The grafts are prepared by cutting a slice off one side tapering to the bottom; the outer bark of the other side is then removed with a light and delicate hand, leaving the cambium or inner bark to unite with that of the stock. When the graft is prepared, an ivory or bone skewer, in shape like the bottom of the scion, is inserted close to the wood in the inner ring of bark, and as soon as it is withdrawn the scion is immediately inserted and pushed firmly down with its flat side to the stock. The grafts should be tied in and immediately well coated with clay, which must be looked to occasionally, and all cracks filled up till the scions begin to grow, and when growth fairly sets in the ties will require loosening and later in the season they should be removed, but if soft matting be used, no injury will arise if left on till the weather destroys it. As the young shoots of the grafts make progress, a small stake should be placed to each to prevent wind blowing them out, which sometimes happens, especially in the case of rind grafting. Most of the success of grafting depends upon doing it at the right time, and both stock and scion should be in proper condition for rendering the operation satisfactory. The scion should be in a dormant state, and to this end the young shoots forming the scions should have been cut off and laid in moist earth in a cool place several weeks beforehand. In grafting we commonly use young wood, but older wood, so long as it did not exceed the stock in thickness, would do equally well. The buds of the stock should be just bursting into growth when the grafts are put on, and in the case of old trees a little more time may be permitted. In planting fruit trees extensively in any given district, some, no matter how good their character may be elsewhere, will generally be found unsuitable and worthless, but by heading them back and grafting them, in two years they will be converted into valuable trees, while by digging up and planting

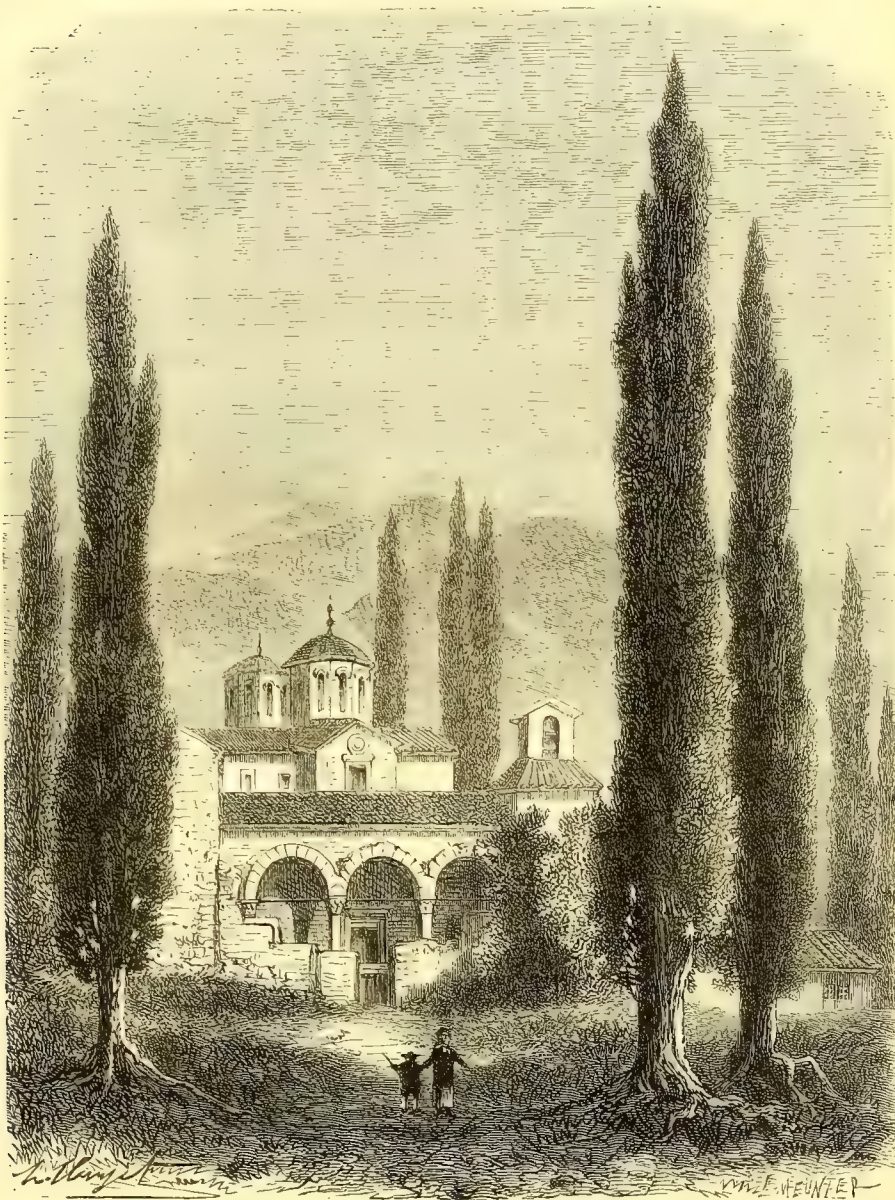
new ones more than double that time would be consumed before fertile trees could be obtained. Those, too, who have only a limited number of trees can if they like have several sorts of Apples or Pears on one tree. I have in the case of large trees seen quite a collection of Pears on one tree. However, this is not so much to be desired, as if more than one or two kinds are worked

RECESSED WALLS.

I DID not notice Mr. Groom's adverse criticism on these referred to by Mr. Thomas Williams in *THE GARDEN* (p. 138), but I agree with every word that the latter has so well said on the subject alike of recessed walls and permanent copings. Recessed walls are far from common. Those I have seen have been very successful. There is a practical

difficulty in making them deep enough, but with the recesses just large enough for a tree and the projections as prominent as practicable, recessed walls break the force of the wind as well as shelter the trees from frost more and better than any other contrivance in our power probably. Those who cannot have recesses may secure several of their merits by building projecting piers against straight walls; neither do these involve any loss of wall space; they, in fact, increase it, for the front and side of the pier may be clothed with a cordon Apple, Pear, or Cherry. These, being hardier than the trees placed in the recess, will as far as their branches and leaves project add to the protective force of the pier. Mr. Williams' remarks about rains and dews are as forcible as they are just and true. He might also have added that it is often a great advantage in the late autumn to have broad copings or deep recesses to shed off vertical rains or dews. Last autumn we had full half of some of our more choice Cherries and Plums split and rotted by the rains that a more waterproof permanent coping would have shed off and so saved the fruit. In dry weather the garden engine may readily be applied when wanted, and it is far more nourishing as well as refreshing to Peaches and such fruits on sun-baked walls than any mere dews, however copious. As to serpentine walls, I like them so much that were I building garden walls I should choose this form. Judiciously planted and managed they furnish a greater variety of site and climate than any other form. The deep recesses on the southern and western sides are the best possible positions for choice Peaches and Nectarines, whilst the convexities on the opposite or cool sides are capital for hardy Pears, Plums, or Apples. The easy sweep of serpentine walls is also pleasant to look upon, the nearest approach possibly to veritable lines of beauty that bricks and mortar are capable of. Neither is the benefit confined to the wall. The concave recesses at the wall bottom grow Lettuces and other salad plants as if by magic in the early spring-tide, proving that the curves catch and hold the early sunbeams. Such

walls also take fewer bricks than straight ones, while they are equally or more useful and assuredly less stiff and ugly than the stereotyped garden walls with the right angular corners dank and damp. Surely there can be no possible reason why garden walls should not be rounded off at the corners if not curved all the way. Straight and square seems the Medo-Persian shape of most kitchen gardens. Perhaps worse shapes for culture as well as taste could hardly be chosen. It might be as well to give a motto or two for the new year thus round our walls, and diversify the forms of our



Columnar Trees, the Eastern Cypress (*Cupressus sempervirens*).

on one tree, unless kinds of nearly equal vigour are used, the tree will lose its balance, though this may in some measure be avoided by working the weakly growers on the highest branches and the vigorous kinds nearer the base. Strong shy-bearing sorts may be rendered more fertile by double grafting. All grafting tends to weaken the vitality of plants subjected to it; that indeed is its object; and in conjunction with a suitable stock increased fertility is the result. It is owing to this that double grafting becomes valuable where early bearing is sought.

E. HOBDAV.

kitchen gardens wherever and whenever that can be made practicable. D. T. FISH.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Wrongly-planned Fruit Houses.—Thinking this referred to some wrong structure in a special case, I had not read what appeared on the subject until last week, and was surprised to find that all that was wrong was a cross-trellis. I have seen several of these; we have one here, and I do not find anything at all wrong with it. Presuming that the spaces between the cross-trellises are sufficiently wide and the house is fairly light, the fruit from such trellises lacks neither colour nor flavour, while the trees continue in good health for years. So economical of space is this cross-trellis system, and withal so ornamental in appearance, that some few years since I wrote an article on the stall system of Peach culture, which excited considerable interest at the time, and led to several houses being planted on that plan. One of the most recent examples may be seen in the gardens of Mr. Porteus Oakes, of Newton Court, Bury St. Edmunds, where Mr. Carmichael, late of Sandringham, has grown and ripened some of the finest peaches I have ever seen on cross-trellises with which the lofty Peach houses are furnished. It forms a refreshing change from the roof trellises, provides more space, and allows the back wall to be utilised from its base to its summit. I quite agree with Mr. Prior's remarks at page 163 on this subject.—D. T. FISH.

—“J. S. W.” asks me (p. 164) to excuse him for saying that the samples of Peach shoots sent to him for inspection were remarkably bad specimens. Most certainly I will excuse him, and for this reason: I know that it is the prevailing idea among gardeners, that nothing short of dark brown wood and buds can give satisfactory results; they were taught so in the days of their apprenticeship, and the idea has stuck to them ever since; therefore I am not surprised at the verdict passed by “J. S. W.” upon my Peach shoots. Had I been asked my opinion of such shoots a few years back my reply would have been similar to that of “J. S. W.’s,” but experience has since taught me to think differently. I could name four gardeners in this neighbourhood whose Peach houses are so situated that it is impossible for them to get tanned wood, and yet they get good crops annually. One of them told me the other day that he has gathered Peaches some of which weighed 6 oz. and 7½ oz., and of good colour. Now let me ask “J. S. W.,” if the shoots sent were so remarkably immature, how it is that the gardeners in question annually get good crops of fruit, the admiration of all who see them? I have received some of “J. S. W.’s” wood; it is larger and browner than that sent by me, but tanned only on one side; the flower-buds also are, as he says, more prominent, but this does not in any way prove that the wood sent by me will not give good results; to say it will not is to stand out against positive facts.—G. W. PRIOR, *The Hollies, Weybridge*.

—In justice to Mr. Prior I should like to say that some years ago I saw his house of Peaches trained across in this manner, and the trees bore an excellent crop, and were to me in a remarkably interesting state from the novelty of the trellising and the great area of fruit trees in proportion to the house. Mr. Challis, I may add, has recently made a very large experiment of the same kind, and he will be able to testify to the value of the system.—J. H.

Barnack Beauty Apple.—I know of no greater boon to a gardener than a really good Apple that bears every year. Barnack Beauty is not a Ribston in flavour nor a Gloria Mundi in size, but the happy medium between the two—a really handsome full coloured good production. It is a very late bloomer, and for eleven years past to my knowledge it has borne heavy crops.—R.

Permanent Copings (p. 138).—My objection to a fixed covering over fruit trees, whether it be a brick arch or a coping board is not founded on theory but practice. Copings, or other coverings during the flowering stage are necessary, but they should be dispensed with as soon afterwards as possible. I can see every day fruit trees on walls with overhanging roofs, but they are neither so healthy nor prolific as those on open walls. Peaches and Nectarines under a fixed roof, I need hardly say, are altogether differently circumstanced. In the case of recessed walls, a little extra attention with the garden engine will doubtless keep the trees in health.—J. GROOM, *Linton*.

Layering Vines at Combe Abbey.—Allow me to add my testimony to the great merits of the system of propagating Vines by layers as practised at Combe Abbey by Mr. Miller. A finer or stronger lot of young Vines in pots I have seldom, if ever, seen, and they have been produced at such a nominal cost! Big labels are in each pot. On the first one we read was “Black Hamburgh: layered March 19, cut away April 20”—a little over a month only. No expensive propagating house is requisite; as much advance is made in one month as in three by the ordinary modes of propagating by eyes, and there are no failures. Propagating Vines by eyes is a very beautiful, but rather expensive process, and requires special appliances and considerable skill and attention; layering Vines à la Miller is simple, expeditious, and within the reach of every one who grows a Vine. I would recommend the plan strongly to all gardeners with limited means, to amateurs wishing to rear their own Vines, and thank Mr. Miller for the lesson.—A. F. B., in *Gardeners' Chronicle*.

TREES, SHRUBS, AND WOODLANDS.

COLUMNAR TREES.

IN Italian and Grecian landscapes the Cypress, which there attains its maximum height of nearly 100 ft., forms a characteristic feature, and breaks up monotonous flatness similar to the Lombardy Poplar in English scenery. But oftener than the Poplar the Cypress is the accompaniment of architecture, with the horizontal lines of which its conical outline forms a striking contrast. Though in this country Cypresses do not grow to nearly the size which they attain in South Europe, they are valuable trees, as indeed are all the other Conifers of conical growth in ornamental planting, though, unhappily, as in the case of the Lombardy Poplar, they are not always planted so as to produce the harmonious effect of which they are capable. Indeed, one of the most characteristic defects in English gardens, and particularly in those of limited extent, is the indiscriminate planting of all kinds of Coniferous trees with apparently but little regard as to either their ultimate effect, habit of growth, or degree of hardness. Thus many a fair lawn has become bestrewn with a heterogeneous mixture of Conifers of varied size, shape, and tint, harmonising but little among themselves or with their surroundings. This incongruity is not the only evil result that the excessive planting of Conifers has brought about, for it has given to residences a gloomy, nay, almost funereal aspect, in consequence of the dull monotonous green the whole year round, being unmarked by the ever-changing effects which characterise deciduous trees and shrubs. This would not be so evident if there was, as there should be, a due admixture of deciduous subjects, such as beautiful flowering deciduous trees and shrubs, which the Conifer mania has nearly driven from our gardens, thus depriving us of their blossoms in spring, and their berries and brilliant tints in autumn.

But to return to the subject of columnar trees. The Cypress and other cylindrically shaped trees have the same effect in the immediate surroundings of a house that the Lombardy Poplar and other trees of tall conical growth have in the more distant landscape. The smaller-growing conical trees should be disposed of on the same principles as the Lombardy Poplar in order to produce congruous effects, but with this difference: the dwarfer subjects should accompany low trees or large shrubs of a flat or rounded habit of growth, but instead of that they are too often seen isolated on lawns, with the inevitable saucer-like ring scooped out of the turf at their base, which not inconsiderably adds to their ugliness, and these dotted about on a lawn, with sometimes geometrical precision, or, as in the case of the Irish Yew, along the sides of walks, have anything but a good appearance. Columnar shaped Coniferous and other trees, in order to be seen to the best advantage, should, as a rule, invariably be planted in groups, and balanced, not matched, by corresponding masses of trees or shrubs of spreading growth and rounded outline, and they should always, when seen from the principal points of view, be accompanied by an irregular and picturesque outline of low-growing subjects, both evergreen and deciduous. As nearly all the cultivated Conifers, except the Pines, Cedars, and a few Spruces, are more or less of a cylindrical, conical, or spiral growth, it is unnecessary to enumerate varieties.

Our illustration, which represents the Eglise de Leondari, in Greece, admirably shows the harmonious effect that Cypresses produce in relation to buildings, but there is also nakedness observable, which clearly indicates what I have been endeavouring to point out, viz., that columnar subjects, handsome though they may be in themselves, can only be seen to advantage in connection with trees of a different habit of growth.

WILLIAM GOLDRING.

THE PURE WHITE LAURUSTINUS.

I WAS pleased with your note recommending this useful variety at page 117. So little has it hitherto been grown, that on referring to your paragraph to-day one of the best gardeners doubted the distinctness of the white variety, thinking that it was only whitened by being grown under glass; there is, however, no question of its entire distinctness, as well as its great superiority to the semi-pink sort, as well out of doors as in. Even the form, size, shade, and general character of the leaves are also rather different from the common Laurustinus. With such seasons as we have had lately it seems hardly worth while attempting to grow the Laurustinus in the open. This winter we had some masses almost crimsoned over with a forest

of buds, and now all hang their heads and are blackened with the severe cold; last year it was very much the same, but under glass, in pots or tubs, small or large plants are not only safe, but among the most beautiful of all the beautiful flowers of the most flowerless season. Just as the *Chrysanthemums* fade or die the *Laurustinus* comes out in full beauty, linking together as it were the old and new years' winter and spring into one continuous wreath of beauty. The purple *Laurustinus* is more white under glass than in the open, but it is hardly worth growing when the white one may be had, for mixed flowers are seldom so effective as those of one decided colour or white ones; and good whites are apt to be somewhat scarce in December and January. The *Laurustinus* is beautiful in such small pots as 8-in. or 10-in., trained either as small standards or dwarf bushes; but it also forms a fine object in lofty conservatories grown into tall pyramids or standards, with 4 ft. or 5 ft. clear stem, and heads of corresponding size to match. There is one great advantage in growing the *Laurustinus*—it need seldom be under glass longer than from four to six months. Any sheltered sunny spot in the open air suits it admirably in summer. Where large shapely plants are grown in tubs they could be placed out on the sides of walks, &c., in summer in lieu of Orange trees, for the *Laurustinus* is beautiful in leaf and in habit as well as showy when in flower. Occasionally, too, *Laurustinus* in pots set a full crop of berries, and when this is the case these are even more strikingly beautiful than the flowers. Possibly the setting of a full crop of seeds may prove one of the possibilities of culture under glass; and if so, there can hardly be a doubt that the *Laurustinus* may become as popular a berried plant as it is now a winter and spring flowering one.

D. T. FISK.

ORNAMENTAL HEDGES.

THERE are few large establishments where hedges of some kind are not to be seen. Sometimes they occupy a position outside of the boundary, and very often they are to be found dividing some portion of the garden, such as the vegetable from the pleasure grounds. It has more than once occurred to me that hedges generally might be made to combine the useful with the ornamental in a very happy manner. Supposing, for instance, that a hedge be formed of Quick and Holly, what is to hinder the planter from setting here and there a seedling Brier, a *Pyrus japonica*, a naked flowered Jasmine, or any such strong rooted vigorous flowering subject? These plants would by no means interfere with the growth and general keeping of the hedge, and they would by the time the latter had grown to the desired height work their way to the top of it. The Briers might be worked with any free growing perfectly hardy Rose, which being allowed some freedom of development would droop down in graceful festoons, and such a cheerful subject as the yellow Jasmine would contrast finely in winter with the green Holly. Of course only subjects whose hardiness is beyond all proof, and which are capable of well holding their own in the struggle for existence with such strong growing plants as the Quick and the Holly, should be planted, for the object in this case is to plant for a permanency, and not for transitory effect.

There is no reason why a hedge should not be at once efficient and ornamental, and it is certain many unsightly hedges might be easily converted into something pleasing to the eye. In some instances the living barrier becomes bare at the base, or perhaps from some error in management it never has been well clothed with wood to the soil. In such a case a hedge, if it forms an outside boundary, cannot be said to fulfil its mission, which is to exclude intruders of all kinds, but oftentimes proves a source of annoyance to the owner of the garden, for dogs, cats, and chickens appear to take especial delight in passing and re-passing through such defective barriers. Even the worst and most dilapidated of hedges may be restored to efficiency, and may be converted into ornamental screens at but slight expense and outlay to the owner. Take out a trench on the garden side some 2 ft. deep, extract all weeds which may be growing amongst the Quick, and fill in with good soil, or if the original mould is used, mix with some rotten manure to within 6 in. of the surface. Then plant some strong Ivies, training the shoots up amongst the Quick, and treading the soil in firmly round the roots. In the course of two or three years the Ivy will have invaded every portion of the hedge, and will form from the soil upwards a dense impenetrable screen, bright, fresh, and green all through the year. It may be thought that in time the Ivy will kill the Quick, but it will not if the latter is allowed to grow away from the top each year, heading it back in the autumn.

If so desired, Holly may be planted instead of Ivy, but in that case some years will elapse before any great alteration will be visible, for the Holly will not make any great progress for a season or two. In the neighbourhood of Woking, where there are many large nurseries, a custom exists of forming the outside boundaries of

Thorn and Holly intermixed. The leading shoots of the Holly are allowed to grow up, and are then budded at irregular heights with the various golden and silver variegated kinds, which in many instances grow into specimens some 10 ft. in height and 6 ft. through, handsome highly-coloured plants, bright and beautiful at all times, but most so in winter when the golden tints appear to be more vivid than in the warm season of the year. The Thorn may be treated in much the same manner as the Holly; the young free shoots, or some of them at least, being allowed to extend, may be grafted with Paul's Crimson or any desired kind which will afford a blaze of rich colour early in the year. In planting a hedge composed of Holly alone, some plants of the variegated kinds may be mixed with the type, although I do not consider this to be the best way of imparting colour and variety. The better plan is to plant all green Holly and bud shoots here and there between the base and the top of the hedge, which will in time have the effect of breaking up the uniformity, and will produce streaks, spots, and dashes of variegation, the more pleasing as being irregularly distributed over the green surface. When variegated plants are set in with green ones, the former are apt to get smothered by their more vigorous neighbours, or at any rate the colouring is confined to the base of the hedge.

JOHN CORNHILL.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS.

Rhododendron Seed.—How should *Rhododendron* seed be sown? I have always failed to grow a single plant, and, having some very fine seed, I am anxious to know how to secure young plants.—LADY GARDENER. [Sow on the surface of loose peat soil in a pan. Place upon the pan a piece of flat glass, and keep the surface of the soil moist by gentle sprinkling. The pans should be placed in a frame kept at a temperature of about 60°.—G.]

Azara Gilliesi.—This, like many other beautiful shrubs, comes to us from Chili, and is by far the handsomest of the group to which it belongs. I described it two years ago as a hardy wall shrub, but if not perfectly hardy as a cool conservatory pillar plant, it must rank high. It has a distinctness entirely its own; in general appearance it much resembles *A. crassifolia*, but is a much more rapid grower than that species, and, unlike it (which flowers in quite a small state), does not bloom until of considerable age and size. Our best plant of it, which is six or seven years old, is about 10 ft. high, has a clear stem of 6 ft., the rest being trained along under the rafters of a cold house, from which depend a perfect curtain of shoots from 1½ ft. to 3 ft. long, every twig and end of which was a short time ago literally a mass of golden catkins and bright green Holly-like leaves. A peculiarity of this shrub is that in a young state very large, usually large and smaller, stipules are produced at each node, but as the growth extends these are not produced.—T. SMITH, *Newry*.

A Phenomenal Tree.—The *Bulletin d'Arboriculture* records the existence of a tree in Flanders which must be a real curiosity, and is probably unique in its way. The lower portion of the trunk is Willow and the upper part Ash. Branches issue from all parts of the stem, the curious association of Willow and Ash producing a very striking effect. The explanation is that an Ash seed must at some time have dropped into the hollow trunk of the Willow, germinated, and the roots eventually finding their way into the soil, the young plant took a vigorous development, pushing itself upwards, and eventually so increasing in girth as to fill up the cavity in the Willow.—J. CORNHILL.

Promotion of Young Gardeners.—Can "S. W." (p. 105) really mean that it is positive injustice to have a foreman from another place in preference to promoting the next best man in his own establishment? I think most gardeners will agree that a change is best. In the first place, in the case of young men who have been a year or two in a place one knows about as much as another, or at least thinks he does; and the men generally will not derive the same benefit under a foreman whose abilities they know as from a stranger, who is sure to have new ways and ideas respecting the carrying out of the work. I grant that strange foremen may not be for the benefit of the place, but it must be an advantage to young men to have fresh men occasionally. I will state the case thus: Let "S. W." send his best man to another place of the same class as his own, and from that place get the best man in return. Would not the change benefit both places, and be a great advantage to the under men? If not, why are two heads better than one? Or why do doctors hold consultations? In fact, a change of foreman to clever journeymen is having another source of knowledge added to their own. It may be argued that the gardener ought to be the sole teacher, and that the foreman should only see his instructions carried out, but it is in the carrying these instructions out properly the whole secret of the matter lies.—W. H. T., *Staines*.

NOTES OF THE WEEK.

Salvia verticillata.—In his notes on the flowering trees and shrubs at San Remo (p. 153) Mr. Inchbald says *Salvia verticillata* was loaded with rose-coloured blossoms. There must be some mistake here. The plant Mr. Inchbald saw was wrongly labelled. The true *Salvia verticillata* is a deciduous herbaceous perennial, flowering at midsummer. It is rather weakly in growth, but its dense whorls of small bright lavender-blue flowers are pretty. I have grown it for years, and shall be most happy to send it when in bloom to Mr. Inchbald if he cares to see it. It seeds itself in all directions and increases rapidly. It is, I believe, a very common plant on the Continent, and has been naturalised for some years on the railway banks near Shifnal, and I believe in other parts of England.—H. HARPUR CREWE, *Drayton-Beauchamp, Tring.*

New Seedling Primula.—We saw the other day at Hatfield a seedling double-flowered *Primula* which we consider to be a decided improvement on the still popular double white. The chief points of difference are the more robust and dwarfer habit of growth, and a greater profusion of blossoms, which are likewise larger and more rosette-like. There is no mistaking the two forms, for among a large number of plants of both kinds intermixed on a shelf in one of the houses the seedling could be easily discerned without removing the plant. A *Primula* superior to the old double white, which is now so largely grown, especially for market purposes, is indeed an acquisition, and we hope to see it become distributed.

Double Cinerarias.—We have to thank Mr. Vertegans, Chad Valley Nurseries, Edgbaston, for flowers of several varieties of double *Cinerarias*, the finest we have yet seen. The blossoms are about 1 in. across, perfectly double, and form quite a rosette. The colours represent bright magenta, bluish-purple shaded with violet, white tipped with violet, deep purple, and white heavily tipped with purple. We are pleased to see such an improvement in double *Cinerarias*, and they cannot fail to become popular flowers on account of their attractiveness and the quality of remaining such a long time in perfection.

Phajus grandifolius.—It is not often that this old-fashioned orchid is taken in hand and grown with the same liberal treatment as that accorded to ordinary "decorative" plants, yet it certainly well repays the extra trouble by the abundance of flowers and the broad handsome foliage which it produces. At Hatfield House it is regularly grown as a decorative plant, both as specimen pot plants and for cutting purposes, and we have seldom seen a finer lot of plants in 8 in. pots as were arranged in a row in one of the plant stoves, each plant being furnished with a dozen or so of spikes of highly-coloured blossoms rising above healthy green foliage. The soil used for potting is a compost of rich fibry loam and sand, in which the plants evidently thrive well, and over-potting is an important point to guard against.

The Constantinople Hazel (Corylus Colurna).—One of the most conspicuous trees in the richly stocked arboretum at Syon is a fine specimen of this tree, bearing a profusion of long drooping catkins, which give it a singular, yet elegant appearance. This tree is the largest of the kind in this country, and has attained its maximum height. It was figured in Loudon's "Arboretum" some forty years ago; it was then 61 ft. in height. It has a spreading growth, but is not what would be termed a handsome tree, though the manner of branching is very characteristic. It appears to be a rare tree even in tree nurseries, but on account of its rapid growth in almost any kind of soil and perfect hardiness it is well adapted for ornamental planting.

Daphne indica.—This deliciously scented plant is not half enough cultivated, a circumstance probably attributable to its being considered somewhat difficult to grow in a creditable manner, and also on account of its uncommonly straggling habit of growth. By far the finest grown examples we have met with lately we saw the other day at Hatfield House, where a large number of plants produce an abundant crop of flowers, which are extremely valuable, if only for their exquisite perfume. Some large plants with their straggling branches trained in a pyramidal manner alone yield a large supply, and these are supplemented by a number of small healthy plants bearing from a dozen to a score of clusters. The plants are all grown from cuttings, a plan which Mr. Norman considers preferable to grafting.

Exhibition at Frankfort.—We have received the programme and schedule of prizes offered for a proposed *Allgemeine Gartenbau-Ausstellung* instituted by the Horticultural Society of Frankfort-on-Maine, in connection with a general German Patents Exhibition. Although this programme has been very freely distributed in this country, we are not at all sure that the exhibition is to be an international one. There is not a word in it respecting foreign competitors;

but as the horticultural exhibition is designated "universal," and the Patents Exhibition as "universal German," we are in doubt as to the scope of the former. However, application should be made to the secretary of the society named. In addition to a permanent exhibition, there will be special temporary spring, summer, and autumn shows of vegetables, fruits, &c., in season. If not really international, it will doubtless attract some visitors from this side of the Channel.

Spring Flowers.—As an instance of the energy displayed by plants after a thorough rest I may mention that just two days after the frost left us the first *Winter Aconite* opened—truly the harbinger of spring. Before the frost came there were no signs of this plant beyond a slight upheaving of the ground. It seems quite wonderful that in forty-eight hours, or thereabouts, any hardy plant in the open air should accomplish so much; three days after the icy covering was removed the first *Snowdrop* opened, and now on the last day of January large patches of the latter are quite white, although the frost is not quite out of the ground. *Cyclamen Coum*, in full flower when the frost came, remained locked up all through it, and is now as fresh as though it had not felt it at all. *Crocuses*, *Daffodils*, and all kinds of spring flowers are in full movement, eager to inaugurate the grand hardy flower march of 1881.—T. SMITH, *Newry.*

Clorodendron speciosum.—The beauty of this old-fashioned climbing stove plant seems as a rule to be forgotten, but we were pleased to see that its value was appreciated at Hatfield, where Mr. Norman grows and flowers it freely. In winter few plants are capable of producing such a brilliant effect in a plant stove as this, its large clusters of deep crimson blossoms forming a fine contrast with the deep green foliage. This and also *C. Thomsoni*, which is represented by a remarkably fine planted-out specimen, are much valued for cutting purposes, a state in which the flowers last in perfection for a considerable time.

Fine Chinese Primroses.—We have to thank Mr. B. S. Williams for sending us some very handsome forms of Chinese Primroses, very rich in colour, full in form, and for the most part prettily fringed. The varieties are as follows: *P. sinensis fimbriata coccinea*, and its white variety; *P. sinensis fimbriata alba magnifica*, and the red variety of *P. sinensis fimbriata*.

General Horticultural Company.—The first ordinary general meeting of this company was held the other day at Warwick House, Regent Street. From the auditor's report, made up to the end of December last, it appears that the amount of business done in the eight months during which the company has existed was £22,600 2s. 8d., and the gross profit £13,919 16s. 10d. The profit and loss account shows a nett profit of £3601 4s. 9d. Mr. Wills commenced business ten years ago with a sum of £300; on the formation of the company the amount due to him was £24,581, £11,000 of which he took in fully paid up shares; he has since taken £10,000 in the same manner, so that his shares amount to £21,000. At the meeting Mr. Wills stated his willingness to relinquish the interest of his unpaid purchase money in order that the shareholders might receive a dividend of 5 per cent.; but the shareholders present, while thanking Mr. Wills for his offer, declined to take from him what was lawfully his own. Much confidence was expressed in the position of the society, and an increased number of shareholders is anticipated. The total number of shares taken is 2414, the working capital having been only £7906, and a good dividend is expected at the close of the financial year.

Spring Flowers at Tottenham.—Among the few harbinger of spring in Mr. Ware's nursery are the new *Crocus alata vicinus*, the rare little gem *C. suaveolens*, and the beautiful *C. imperati*. There are also two *Snowdrops* besides the common one, viz., *G. plicatus*, the Crimean kind, and the new *G. Elwesi*. *Bulbocodium trigynum* and *Iris alata* are likewise still in flower.

Corbularia citrina.—This, of which Mr. Nelson, of Aldborough Rectory, Norwich, showed a flower at the meeting at South Kensington on Tuesday last, is by far the finest variety of *Hoop-petticoat Daffodil* we have seen, the flowers being unusually large, with an inflated crinoline-like cup of a clear lemon yellow colour.

The "Garden Annual."—Three editions of this have been printed already, beside a smaller strongly bound edition of a thousand copies. Embodying many new features and in its lists of the trade gardeners giving nearly double the numbers before enumerated, errors were inevitable. Preparations are already being made for the improvement of the next edition, for additions to which we have to thank many of our readers. Printed forms are obtainable at our office for filling in the names of country seats, their owners and gardeners. All interested in the existence of a really good publication of the kind may rest assured that we shall not spare the efforts or the sacrifice needed to secure it.

PROPAGATING.

SEEDLING AURICULAS.

NEARLY all growers of Auriculas are raisers of seedlings, and those who have not yet begun such work have never known one of the greatest pleasures connected with Auricula culture. Most of us who have frames full of seedlings watch the plants during the whole period of their growth with the keenest interest. Even now full-sized plants that have not flowered are full of interest and beauty. It would be better to remove a portion of the soil and surface dress the whole of them in a week or two, but this cannot be done in a place that has to be kept up in all its departments, and seedling Auriculas cannot be allowed to take up much of one's time; they will receive little more attention except watering them when it is required until they bloom. Our stock of seed last year was sown in July and August, and but very few plants came up at that time; indeed, in many of the pots there were none at all. Now they are coming up quite freely, but I removed the whole of them from cold frames into a greenhouse, where they are making very rapid progress, and as soon as the first rough leaf is formed they will be carefully pricked off into small pots. A good plan is to fill the pots up to within an inch of the rim with the usual compost; then place a surfacing of fine sifted, open material on the surface; press down gently, and make all quite level. Prick a dozen of the small plants into a 3-in. pot; they are very small, and require careful handling. These small seedlings, which have just now vegetated, will form strong flowering plants for next year. They grow very slowly under any circumstances, but the best position for them is still on shelves near the glass in the greenhouse, where they should be exposed to a free circulation of air as often as the weather permits. If the seed saved last season has not yet been sown, that may now be done; and it will vegetate more speedily if given a little bottom heat. It is necessary to sow thus early in the year, and so push forward the produce of seed saved the previous season, so that good plants may be built up before the end of the season.

Seed Saving.—What are the best varieties to save seed from? is a question that has been frequently asked. Also, whether green-edged varieties are invariably obtained from seeds from that class, or white edged from white edged varieties. I do not approve of mixing the classes. It is not desirable that one class should be preferred to another. Some prefer the white edge to any other. Good green edges are also much sought after, probably because they are very scarce, while the best formed flowers are to be found in the grey-edged class. Those flowers that are of the greatest substance, that have the finest formed petals, and the most decided colours are the best from which to save seed. George Lightbody is a model flower to work from, but it does not produce much pollen. Marie (Chapman) gives more pollen than any variety known to me, and is a good kind to cross with George Lightbody. Another desirable point in an Auricula is its capability of wearing well; with care, some varieties will last in full beauty for six weeks or more, while others will not stand more than six days; either the petals will cockle, or the colours will become dingy, or fade. It will therefore be seen that many things must be taken into consideration.

Hybridising.—It may be useful to some if I give the names of a few varieties which I think it would be desirable to cross with each other. Beginning with the green-edged class, Col. Taylor may be crossed with Apollo (Buxton), Lovely Ann with Admiral Napier, or changes might be made with them. Admiral Napier, owing to its strong, healthy habit, is a good pollen parent. In grey edged it is very desirable to use such a distinct good variety as George Lightbody as a pollen parent if pollen can be had; and the common variety, Robert Trail, is a good sort to cross with any weakly variety, the flowers of which have good points. In the white-edged class, Smiling Beauty may be crossed with any variety that has purity in the white, such as Ann Smith. Earl Grosvenor would also be a good pollen parent. I find the flowers set best in a greenhouse, where the plants may be placed close to the glass, but shaded from the sun. The seeds will take nearly three months to ripen from the time of fertilisation. During that period, the plants are best in a shady place behind a north wall.

J. DOUGLAS.

Yucca aloifolia variegata.—Anyone possessing tall naked specimens of this may soon get up a stock of it, and at the same time transform the ungainly parent plant into a short sturdy one. Cut the head off and allow it to lie for a day or two, so as to dry a little, thereby lessening the probability of rotting; it may then be potted in a comparatively small well-drained pot and in a sandy

compost. It should then be plunged in a gentle heat, or better still if stuck in a bed of Cocoa-nut fibre it will soon root, while the stem may be cut up into lengths of about 1 ft. and laid in the fibre, just covering them, when young plants will push from the dormant eyes, and as soon as large enough may be taken off with in most cases a few roots attached to them. This done, the stems may be again returned and will soon push more plants, which can then be removed, and this process may be continued until the stem decays, by which time a goodly number of plants will have been raised from it. The large roots may be laid in and treated in the same way.—ALPHA.

Casuarina sumatrana.—This very elegant indoor shrub is very difficult to increase; the best way is to take the matured shoots, made after the plant has been cut back. These, if put in a pot singly, with a bell glass over them, and placed on a cool bottom for a month or six weeks in a stove, till they begin to callus, will, in all probability, strike root. After that they may be set on bottom heat, rather slight at first, increasing it by degrees. The glasses must be wiped dry at least once a day. The best soil is peat, loam, and sand in about equal proportion; small long pots are the best in which to place the cuttings. When watering apply it at the bottom—not overhead. In about three months the glasses may be tilted a little, and afterwards taken off for an hour each morning. If the cuttings show no signs of flagging, they may be examined by carefully



Cutting of *Casuarina sumatrana*.

turning them out of the pots to see if they are rooted. In the case of those that have rooted through to the sides of the pot the glasses may be left off altogether, but in that of the others, in which no roots appear, they must still be retained.—H.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 8.

THE chief attractions at this meeting were the groups of cool house Orchids, Chinese Primulas, and some excellent examples of Grapes.

First-class Certificates were awarded to

Rev. J. G. Nelson, Aldborough Rectory, Norwich, for—

Lachenalia Nelsoni.—A hybrid, the result of crossing *L. luteola* and *L. aurea*, the former being the seed-bearing parent. The progeny partakes of the character of the parents, being intermediate as regards colour, but the growth is more robust and the raceme considerably longer than that in either parent. The colour is lemon-yellow, with the tips of the petals faintly tinged with green, while the upper part of the raceme is tinged with red.

To Mr. W. Bull, Chelsea, for—

Maranta crocata.—A beautiful species from the United States of Colombia. It is of dwarf growth, from 6 in. to 9 in., and is of tufted habit, the leaves are ovate in outline, and of a satiny green on the upper, and deep claret on the under surfaces. The flower-spikes

slightly overtop the foliage and the clustered bracts are of a rich orange-red, thus rendering the plant highly attractive.

Vriesia Falkenbergi.—A native of the same locality as the preceding; it is a singular yet beautiful plant, the reflexed leaves of which are arranged in a vase-like manner. The flower-spike is about 9 in. in height, erect, and arising from the centre of the tuft. At its base the colour is a deep blood-red, extending the whole length of the spike, and at the upper part, where it is dilated and flattened, the concave bracts are tipped with white.

Mr. James, Redlees, Isleworth, for—

Cinerarias William Jennings and Master Colvin.—Both are superb examples of the exhibitor's unique strain, both have flowers of large size and of perfect symmetry in form; in fact, the highest state of perfection yet attained in the flower. The colour of the former is a brilliant rich purple, overlaid with a satiny lustre; that of the latter a bright violet purple, with a conspicuous and symmetrical pure white ring.

Messrs. J. Veitch and Sons, Chelsea, for—

Hamamelis virginica arborea.—A variety of the Virginian Witch Hazel; an old introduction. It is a most attractive deciduous shrub or small tree, with its leafless branches completely covered with dense clusters of singular flowers, the deep red sepals and narrow yellow petals, of which are twisted in a remarkable manner.

Mr. Cannell, Swanley, for—

Primula Dr. Denny.—A variety of the Chinese Primrose having unusually large flowers finely fringed and of a beautiful rosy-crimson hue.

A silver flora medal was awarded to Messrs. Veitch and Sons for an extensive group of new and rare Orchids, chiefly consisting of the cool house kinds. The majority represented *Odontoglossums*, among which the most noteworthy were *nevadense*, *cirrhosum*, *Pescatorei*, *Roezli*, and the white variety *tripudians* and its near congener *triumphans*, *Andersonianum*, and a new variety of it named *angustum*, having narrow petals much more heavily spotted than in the type. Several superbly flowered varieties of *crispum*, including two forms, named *maculatum*, having heavily spotted flowers, and *Bowmani*, with blossoms having faint spots. The group likewise included the beautiful hybrid *Dendrobium Ainsworthi*, representing the deepest coloured form named *roseum*, a splendid example of *Ada aurantiaca* with about a dozen flower-spikes, *Miltozia cuneata*, and a flowering plant of the beautiful new Aroid, *Anthurium Andreanum*.

The *Primulas* from Mr. B. S. Williams, Victoria Nurseries, Holloway, were remarkably fine, no fewer than six varieties being represented, each by a large group of well-grown plants. The newest sort shown, *Alba magnifica*, promises to be an excellent kind; the flowers are large, produced in dense and many-flowered trusses, borne well above the foliage, which is also remarkable, being elegantly crisped at the margins. The colour is white, the purity of which, however, is more strongly marked when the plants are more matured than those shown; the habit of growth is very robust. The other kinds exhibited were the old single white, *Chiswick Red* with brilliant crimson-scarlet, *Rubro violacea* with violet crimson, and *Rubra* with rich deep crimson flowers. These are all of the *fimbriata* or fringed petalled section, and all are of robust growing sorts and bear a profusion of large trusses of blossoms. These were supplemented by a fairly grown group of *Cyclamen persicum* representing several varieties, among which the rich deep crimson-flowered kind named *Brilliant* was the most noteworthy. A silver Banksian medal was awarded to this exhibitor.

Mr. Odell, Hillingdon, exhibited some admirably grown plants of new white *Primula* named *Purity*, the flowers of which are large and pure white, produced in fine pyramid-shaped trusses. A vote of thanks was accorded to Mr. Taylor, Longleat, Warminster, for cut blooms of *Pelargonium Guillon Margilli*, a semi-double flowered zonal variety of a scarlet crimson colour, which, no doubt, is a very useful winter-flowering kind.

A flowering plant of what was considered to be either *Aerides vanderum* or *A. cylindricum* was shown by Mr. A. Wright, gardener to Mr. Brightwen, Stanmore Priory. It is a remarkable Orchid, with cylindrical leaves about the size of a quill, like *Vanda teres*, and bearing large, pure white blossoms, having a singular projecting spur. Mr. Buchan showed a flowering plant of *Odontoglossum Wallisi*, a rare but not very showy Orchid, in the way of *O. Lindleyanum*.

An extensive group of plants, consisting chiefly of double *Primulas* and fine foliage plants, were shown by Mr. Barron, from the Society's gardens at Chiswick, which added much to the attractiveness of the meeting.

Fruit and Vegetables.—The fine exhibits of Grapes were by far the most noteworthy of these. Mr. Hudson, Gunnersbury House, Acton, showed about a dozen bunches of Lady Downes Seedling

which were perfection as regards colour and finish, and the size of the bunches and berries was much beyond the average. A cultural commendation was deservedly awarded to this exhibitor; a similar distinction was accorded to Mr. Miles, Wycombe Abbey, for a bunch of Black Hamburg Grapes cut from forced Vines, and, considering the earliness of the season, were excellent examples of skilful culture. The same exhibitor showed Lady Downes Seedling Grape and three fine fruits of Lord Carington Pine-apple. Mr. Wallis, Keele Hall, sent a basket of well-preserved bunches of finely-grown Gros Colmar, Lady Downes, and Golden Queen Grapes. Messrs. Saltmarsh & Sons, Chelmsford, exhibited a seedling Apple named *Beauty of Essex*. It is a handsome fruit of large size, symmetrical cone-like shape, and of a pale lemon colour. It is said to be a good and sure bearer, and of good quality as regards flavour. Mr. Gilbert, Burghley House, Stamford, showed a brace of Montrose Cucumbers, said to be a cross between Syon House and Kenyon's Truebearer. The fruits were about 1 ft. long, with a smooth skin. It is said to be a prolific and continuous bearer, and specially valuable for winter crops. Mr. McIndoe, Hutton Hall, Gisborough, Yorks, exhibited fruits of Cucumber Verdant Green, a handsome sort of medium size and length, and Mr. Miles showed eight fruits of Petch's Favourite, likewise a handsomely-shaped Cucumber. Messrs. Backhouse & Sons, York, sent samples of a seedling Onion which seemed to be a good sort as regards appearance, but was considered by the committee to be too near the Red Spanish sort. A cultural commendation was awarded to Mr. S. Lyon, Sundridge Park, Bromley, Kent, for an excellent dish of Mushrooms, which indicated very skilful culture. Mr. Matthews, Weston-super-Mare, exhibited samples and photographs of plant stands, baskets, brackets, window boxes, &c., made of terra-cotta, the rustic design of which is very tasteful and appropriate.

Scientific Committee.—Dr. Masters read a letter containing resolutions of the Imperial Horticultural Society of Russia on the introduction of the *Phylloxera* into the Crimea, *c.g.*, that the Vine only shall be excluded either as plants or as "eyes," and without a ball of earth, and if plants be sent from countries where the Vine is cultivated they can only be admitted with a certificate to prove that the Vine had not been grown at the same place. Fruits of all kinds (Grapes and raisins excepted) shall be freely admitted. The importation of all kinds from the Crimea shall be provisionally forbidden.

AMERICAN BLIGHT.—In view of the extensive diffusion of this insect, the committee demand the disinfection of the invaded districts and the prohibition of all importations of Apples. Specimens of Wheat haulm affected with grubs were given to Mr. MacLachlan to report upon.

CORDYCEPS SP. OR ATTACKING LARVÆ.—Mr. MacLachlan exhibited the larvæ of some wood-boring beetle attached by a *Cordyceps*, growing as in the case of other species from the neck of the animal. A question arose as to whether the spores were taken in by food or by the larvæ burrowing and so getting these insects in the folds of the neck, as the president suggested.

MOTH ATTACKED BY ISARIA.—He also exhibited a small white moth with a branching fungus proceeding from the thorax, apparently an *Isaria*. It was referred to Dr. W. C. Cooke for report.

HYBRID BETWEEN FROG AND TOAD.—Mr. Boulger asked if an account in the *Revue Belge Horticole* on the existence of the above was a fact. The president believed it had never been confirmed, though the Rev. H. Crewe said from his observations such an occurrence might be true.

SPECIMENS OF BAMBOOS.—The Rev. J. Henslow exhibited some Bamboos, showing in one case horizontal nodes, in the other oblique. The president suggested that it indicated specific differences, not adaptation to resist wind, as was popularly supposed, the idea prevalent being that when the plants grew in the plain the rods were horizontal, but when on the hill-side and exposed to wind, then the leaves were inserted obliquely to give strength to the cane. The president negatived this idea.

WOOD ATTACKED BY FUNGUS.—He also exhibited a piece of wood which appeared to have been partially sawn through, and the surface rendered irregular by the attack of some fungus.

PARMELIA PARIETINA?—He exhibited a specimen on a rock from Cheddar, showing curious zones of Lichen, the intermediate spaces being free from the plant.

POTTERY STAINED BY TOBACCO JUICE.—He exhibited a specimen of pottery ornamented by placing a drop of tobacco juice on the unbaked clay this penetrates by capillary attraction and forms a dendritic arrangement, which is fixed by sizing and baking.

Anniversary Meeting.—Lord Aberdare in the chair. The report which was read shows an increasing number of Fellows, increasing subscriptions, and favourable results obtained by the Scientific

and Fruit and Floral Committees. One of the popular flower shows in the year was attended by 19,000 persons, and another by 11,370. The action between Her Majesty's Commissioners, for the exhibition of 1851, is still pending in consequence, the report states, of the opposition of the plaintiffs, the Commissioners, the debenture-holders being made parties to it. The Court of Appeal to which the plaintiffs carried the point unanimously decided against their contention that the debenture-holders had no right to be heard, and ordered Mr. Percival de Castro, as their representative, to be added as a defendant. This decision gave Mr. de Castro the right, of which he has availed himself, to counter-claim against the plaintiffs, and all questions between the Commissioners, the society, and the debenture-holders can now be decided. The presence before the court of the debenture-holders was absolutely necessary to relieve the society from the grave risk which it would have incurred if it had voluntarily surrendered the South Kensington Gardens, or left it open to the debenture-holders to contend hereafter that it had not raised in the action every defence open to it, and so occasioned the destruction of their security. The council have no reason to anticipate further delay in the proceedings, and hope the case will come on for hearing soon after the return of Mr. Justice Fry from circuit. The small deficit the accounts show is due to £125 charged for law expenses.

LATE NOTES AND QUESTIONS.

Bulb Growth from Crinum Seed.—In a friend's greenhouse the other day I saw a pod of seed of *Crinum giganteum*. It had been left on the shelf, and had developed two bulbs, one of which I have planted and growing. Of course, this is probably something like the development of all seeds of bulbous plants; but the novelty to me is the bulb pushing out from the pod without sowing in the earth.—W. M. B.

New Zealand Veronicas.—Would any correspondent please to say what has been the fate of the out-door Veronicas, *D. decussata*, *D. Hulkeana*, *D. salicifolia*, &c., owing to the late low temperature, so far as came under their notice?—W. J. MURPHY, Clonmel.

Book on Gardening for Buenos Ayres.—MRS. C. D. A.—None of our English books are, we fear, fitted for your friend's wants. Perhaps some of our readers may help you as to a useful work.

Book on Lilies.—LILY GROWER.—"Notes on Lilies," by Dr. Wallace, Colchester, will perhaps answer your purpose.

Gun License (p. 166).—An occupier of land can authorise his gardener to use a gun for the purpose of scaring birds, the occupier himself being in possession of a game license.—F. COVENTRY, Ketton Hall, Stamford.

Names of Plants.—P. C.—The *Azalea* is one of the best of its colour, but we cannot name it with accuracy from such material. The *Primula* flowers represent a very fine strain, well worth perpetuating. The brownish-red tinge of the stalks is not uncommon.—A. K.—*Leptospermum scoparium*.—R. T.—3, *Adiantum hispidulum*; 4, *Nephrolepis exaltata*; 5, *Nephrodium molle*; 7, *Pteris serrulata*; 10, *Asplenium bulbiferum*; 12, *Adiantum decorum*. Of the others send better specimens; we cannot name more than six at one time.—A. E.—*Pinus Strobus*.—A. non.—*Sericographis Ghiesbreghtiana*. The other (yellow) flower appears to be *Justicia calytricha*, but was much withered on arrival.—R. R. O. D.—*Acacia dealbata*.—A. K.—*Asparagus stipularis*.—Hogg.—*Libonia floribunda*.—F. R. S.—*Phajus grandifolius* (fine variety).—W. R.—*Iris Pseudacorus variegata*.—A. C.—*Dendrobium speciosum*.—W. B. E.—Next week.

Low Temperatures.—At Walcot, in Shropshire, we had, on January 12th, 22° of frost; on the 14th, 30°; 15th, 32°; 16th, 32°; 17th, 30°; 20th, 31°; 21st, 32°; 22nd, 29°; 25th, 27°; and on the 26th, 33°, or 1° below zero. Hundreds of trees have been blown down by the hurricane on the night of the 19th.—GEORGE BOND.

—On two occasions the thermometer here has indicated 4° below zero. These were on the 15th and 22nd ult. It is yet too soon to make any comment as to what is injured or lost; one thing, however, I may mention, and that is, we have scarcely a green blade left in the kitchen garden, except Brussels Sprouts, which have again proved themselves capable of withstanding the rigours of an arctic winter. Having a good autumn, we hope that fruit trees in particular will have been sufficiently ripened to withstand the trying ordeal through which they have passed.—S. KEVAN, Castle Upton, Templepatrick, Co. Antrim.

—The thermometer 3 ft. from the ground, in a rather sheltered situation between the garden wall and the house, indicated on the 20th ult. 1° below zero. On the 27th a general thaw set in. The effects of the frost are most disastrous; with the exception of Brussels Sprouts, Scotch Kale, and Sutton's Queen Broccoli, every green thing, including sprouting Broccoli and Cottager's Kale, are either killed outright or hopelessly injured, owing doubtless in a great measure to the previous mild weather. At the end of December the flower-buds on common Laurels looked like the beginning of March, and the consequence is that the common and Portugal Laurels are quite black.—HENRY ECKFORD, Sandywell Park, Andoversford, Cheltenham.

—As it may be of interest to some of your readers I send you a memorandum of the minimum temperatures registered in the garden

here during the past month, the thermometer being set in the open 1 ft. above the ground; also one showing the number of degrees of frost registered for each month during the past three years.

Minimum temperatures during the month of January, 1881:—

	Fahrenheit		Degrees of Frost.			Fahrenheit		Degrees of Frost.	
		30°		2°			25°		7°
Jan. 1st	..	25	..	7	Jan. 18th	..	21	..	11
4th	..	25	..	7	19th	..	21	..	11
6th	..	29	..	3	20th	..	3	..	35
7th	..	25	..	7	21st	..	6	..	26
8th	..	13	..	14	22nd	..	13	..	19
9th	..	16	..	16	23rd	..	21	..	11
10th	..	26	..	6	24th	..	20	..	12
11th	..	23	..	7	25th	..	2	..	30
12th	..	19	..	13	26th	..	3	..	35
13th	..	16	..	16	30th	..	27	..	5
14th	..	16	..	16	31st	..	28	..	4
15th	..	10	..	22					
16th	..	14	..	18	Total				370°
17th	..	4	..	28					

Number of degrees of frost for each month during three years:—

	1878	1879	1880		1878	1879	1880
January	78°	225°	157°	August	—	—	—
February	20	79	43	September	—	5	—
March	65	121	46	October	8	14	87
April	52	93	43	November	160	69	93
May	—	45	20	December	435	251	90
June	—	—	6				
July	—	—	—	Total	818°	907°	590°

It will be observed that the amount of frost in December, 1878, was greater than that in January, 1881, but none of the nights of the former month were so cold as those of the 20th and 26th of last month, on each of which the index descended to 3° below zero.

Abbeyvale, Kilkenny, Ireland.

R. COLLES.

SONGS OF THE SCIENCES.

BOTANY.

What reck I though she be fair
If the flowers are not her care;
If she ponder not upon
Many a Dicotyledon;
If she have no admiration
For all forms of æstivation.

Let her learn through happy hours
Properties of plants and flow'rs;
Know how Watercress should be
Rank'd with the Cruciferae;
How the Sundew, without question
Darwin tells us, has digestion.

If perchance her ardour burns
For the Cryptogamic Ferns;
She will see how spores become
Cased in the Indusium;
And how wondrously you vary
Scolopendrium vulgare!

She shall calmly learn to state,
Clover is tri-foliolate;
And describe in words exact,
Awn and axis, blade and bract:
So shall I in her sweet presence,
Find my love hath inflorescence.

Punch.

Book Hawking.—Some years ago, and perhaps yet in rural districts, gardeners had visitors in the shape of canvassers who induced them to buy books in the most expensive and tedious way possible. This custom seems common now with our cousins across the Atlantic, and this seems to be the welcome that one of these gentlemen got from the lady of the house: "I want to find out who is the master of this house," said the man with a book under his arm to the vinegary-looking woman with a pointed nose and a very small top-knot, who opened the door for him. "Well, stranger," she said, with arms akimbo, "you just walk around into the back yard and ask a little spindle-shanked deacon you'll find there fixin' up the Grape arbour and he'll tell you if I don't boss this ranch he don't know who does. Now, what do you want with me?"

Gishurstine.—Miss Frances P. Cobb writes as follows respecting this: "To-day I sallied forth over swamps and morasses in Wisley Common for hours, and here I testify that though my boots were already rather worn, and last week, decidedly let in damp, I have returned this evening with my feet warm and dry as if I had never stepped but upon a wooden floor. Gishurstine is admirable."

"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE KITCHEN GARDEN.

CULTURE OF CELERIAC.

THE variety of Celery with bulbous roots known under the name of Celeriac does not seem to find amongst cultivators generally so much favour as it deserves. In Continental lands, almost every person having a garden devotes a portion of it, according to his wants, to the cultivation of this vegetable, which in a variety of ways comes into the every-day cookery. It is not to be supposed that Celeriac in England will become a rival to the far more troublesome blanched Celery, although in most gardens a patch of ground might be found for its cultivation. In mid-winter it would be found a useful substitute or addition to the latter, at least in the kitchen. The advantages of growing it are that no great breadth of ground is required, for every root is usable, which is certainly not the case with Celery; there is also no need of an excessive amount of manure, no trenches, nor earthing up, and no digging down of frozen ranges of earth to get it up.

Sowing and Preparing the Ground.—The seeds are usually sown thinly in boxes in an early Vinery or in a Pinery about the end of February for the first crop, and again about a month later for the main supply, the late sowing being from preference made on a slight hot-bed, on which the earth is not more than 6 in. distant from the glass. The young plants, when they have produced a few true leaves, must be pricked off on a slight hot-bed, keeping them near the glass to prevent spindling, or if the weather is too severe to permit that to be done, into other boxes, putting these on a shelf as near the glass as may be. The boxes should have a layer of rich manure at the bottom pressed quite firm, no drainage being necessary in the shape of potsherds if a few holes or crevices are to be found in the bottom. The young plants require to be kept close for a few days and slightly shaded during sunshine. Ventilation can be given at the back of the frame in quantity proportionate to the amount of warmth outside. As the weather becomes more genial, the plants must be gradually inured to complete exposure preparatory to planting them out. A piece of ground should be selected as near water as possible, or where its irrigation is practicable, and having a free and sunny aspect, or at least the sun up to mid-day. The ground should have been deeply dug during the autumn or early winter months, and have had a good dressing of cow or farmyard manure turned into it at that time. Trenching is not desirable when the subsoil is of a loose, gravelly, or porous nature, as in that case the water would sink too deeply, causing the rootlets, which under contrary circumstances would remain small, to grow large at the expense of the tuber. The beds may be formed 4 ft. in width, with alleys of 2 ft. between them, and if the water supply be abundant and the situation a level one, the alleys may serve, if they are made slightly concave at the bottom, as channels for the water, which can then be readily thrown over the plants with a broad tin-plate scoop or shovel. This is by far the readiest and cheapest method of watering where no water system exists in the garden.

Planting Out.—The plants being ready for this purpose must be lifted, with slight balls of the earth and manure adhering to them, and planted out with the trowel, and at about the same depth as that at which they stood in the hot-bed or box. The distance may vary from 1 ft. by 1½ ft. between the plants and rows for the early sowing to 1½ ft. between the plants each way for the later and bigger kinds. When the weather is dry daily waterings will be necessary, given either early in the morning or after 3 o'clock p.m. It is essential that the plants should be kept growing without check till they have reached their full growth, but in moist, rainy weather no artificial watering will be necessary, as an over-abundance of that, combined with much manure, tends to make the tubers hollow, and therefore liable to rot in winter. Twice or thrice, according to the amount of foliage on the plants, at intervals of three weeks in

late summer and autumn the leaf-stalks growing on the shoulders of the tubers must be cut off quite close, avoiding the taking away of too many at one removal, as that would materially hinder the continuous development of the root.

Harvesting and Storing.—In October, before severe frosts occur, the roots must be lifted with the spade; the smaller roots and all the foliage, except the heart leaves, which must be left untouched, should be trimmed off, and then the main roots should be stored in a cellar free from frost, but cool and capable of ventilation; a little light is also of some moment, as the plants during the winter do not go completely into a state of inactivity. For the information of those who have not a cellar at command I will describe a method of storing which I found quite a success in a climate where the thermometer often indicated 20° below zero, Fahr. Trenches were dug in a dry, but not a sunny place, in the shelter of or near a Fir tree plantation, to the depth of 2½ ft. and 4 ft. in breadth (less would be required here), the earth thrown out being packed up at the sides. In this trench Cauliflowers that had formed small heads, Couve Tronchuda, Parsley, Savoys, Celeriac, Kohl-rabi, Carrots, Turnips, Potatoes, Chicory, &c., were stuck into the ground with their roots and tops nearly entire. The loss from rotting was almost *nil*, and there was no trace of that offensive smell which is too perceptible in all frames, cellars, and other close-fitting contrivances. The roof was formed of a framework of sticks covered with reeds or rushes, and finally with about 1½ ft. of Oak leaves. The temperature was so low that decay was hindered, and the ventilation through such a roof was constant and sufficient.

Seed Saving.—In the spring, if this is adopted, a few of the best formed roots can be selected, planted in a sunny place in good ground, and kept moderately supplied with water until the seeds approach ripeness. I have not observed that repeated cropping of the same piece of ground with Celeriac, provided the manipulation of the ground was in accordance with the requirements of the variety had any detrimental effect on it. As an easily grown (for the cottager the sowings might be made under a frame or hand-glass), and what is of as much importance, an easily preserved and storeable vegetable, Celeriac is to be recommended to villa gardeners, cottagers, and allotment holders; as an article of food of no mean value, as a salad material in summer and winter, and as a flavouring substance it stands as high as the poor man's "spice," the Onion. Gardeners and others would, by recommending its cultivation and uses, be doing an act of kindness to their less experienced or poorer neighbours. It would too, doubtless, assist in bringing it into more general culture if it were included in lists of vegetables for competition at provincial horticultural shows.

SYLVESTRIS.

Seed Potatoes.—Now that the frost has gone these will want looking to, as it is surprising how soon they start into growth at this season. The best way to treat them is to have shallow boxes of a size that are handy to lift about, in which the Potatoes should be set carefully up on end and close together, so as to wedge and support each other in their places; and in this manner they may be stored till planting time, and carried off to the ground where they are to be grown without any further handling. The cooler and more airy the situation in which they are placed the better; and therefore, if in sheds, doors and windows should be thrown open during the daytime whenever the weather is favourable. Where space is limited and boxes are placed one on the other, it is very important that plenty of space be left between them; this may be secured by blocks of wood 3 in. or so thick laid at each corner of the boxes, or by using pieces of brick in the same position. Late kinds in pits ought to be got out at once, whether for seed or eating, as they generate heat after this time, and if not seen to will get in such an advanced state as to become matted together. Not only is this early and premature growth injurious to the seed, but it greatly detracts from the quality of the tubers used for eating, as every shoot which they make is so much loss. Pits are all very well directly after lifting and during early autumn, but Potatoes used out of them taste earthy: when laid in a cellar or dark dry shed, however, this goes off. The best plan of storing Potatoes for cooking is to have bins, but if the backs of these are formed by outer walls they should have boards with sawdust behind to prevent frost getting through. In receptacles of this kind sorts may be divided and great numbers stored safely, but for seed wide shelves are the best, unless they can be spread thinly on brick or other hard floors where they can be turned now and then during the winter.

This can then be done with a shovel, and should they want sorting out sieves made of a sized mesh to let the refuse through will do the work much quicker and more regularly than it is possible to do it by hand picking. The sieves which we use have the meshes made square, and right well they answer, as two men or lads soon screen the whole stock.—S. D.

Potatoes for Pot Culture.—The value of pots as means for the early cultivation of some of our vegetables is now and then enforced. Potatoes are here and there so grown, and if properly done a satisfactory crop results. Peas may be done equally well if dwarf kinds are employed, and some other vegetables may be had early by similar means. But Potatoes may be had in abundance where frames or pits are plentiful and fire heat or manure heat is in plenty. It is just such places as these where the culture of Potatoes in pots is of less moment, but even in such there is perhaps the largest amount of space for their culture without interfering with other things. But where there is but a Vinery or two, or perhaps an early Peach house, or an early Rose house, or even an orchard house, a good quantity of Potatoes may be grown in pots, and without much trouble. A little warmth will get them up, and once up they need just enough of heat to keep them growing, but the more light that can be given the better. Nine-inch pots suit most Potatoes well, and if the roots are so restricted the plants tuber all the sooner. A moderate mixture of Hill's or Amies' Potato Manures gives a powerful stimulus to the production of tubers, and does not unduly force top growth. It is wiser to employ these manures thus than to convert them into manure water, as too large an application of strong moisture has a tendency to flavour the tubers. Short-topped kinds are best for pot culture, and although the Ashleaf is generally grown, two of the best kinds because the tops are dwarf are Early Market and Smith's Dwarf Curly. Mr. Fenn once raised some kinds of delicious quality specially for pot culture, but they did not come into favour, solely because they were more fit for pot work than garden. A very dwarf kind shown last year as Early Cluster gave great promise of being a good pot kind, but its quality has to be tested. Any kind that will give with little forcing from one pound to a pound and a half of good tubers from a 9-in. pot could hardly fail to give satisfaction, especially if the quality was as good as can be found in any of our best kinds.—A. D.

Certificated Potatoes.—The following have been awarded certificates by the Royal Horticultural Society or at the International Potato Show: *Early Rounds (white)*—Rector of Woodstock, a heavy cropper; skin smooth, good flavour, and very mealy; Early Market, short haulm, flattish round, withy yellowish-white flesh, fine quality; Breeze's Climax, a heavy cropper, handsome tubers; Bedford Prolific, a heavy cropper, an improvement on Onwards. *Early Round (coloured)*—Radstock Beauty, heavy cropper, fine quality, and handsome. *Early Kidney (white)*—International, an immense cropper, very handsome and excellent in quality. *Early Kidney (coloured)*—Bountiful, a large cropper, deep red with yellowish-white flesh. *Main Crop Round (coloured)*—Vermont Beauty, a good cropper, large, red with white flesh, very mealy. *Main Crop Kidney (white)*—Cattell's Eclipse, a fine cropper and good keeper, handsome, and of excellent quality. *Main Crop Kidney (coloured)*—Late American Rose, a good cropper, a sport from Early Rose, hardier, and a better keeper.

Forcing Seakale and Rhubarb.—I think I once saw it stated by an enthusiastic cultivator that anyone might grow Mushrooms in an old shoe in a kitchen cupboard; whether that is possible or not I cannot say, but certain it is that a situation of that kind answers well for forcing Seakale or Rhubarb, as all that is necessary for either is a little soil and a large box or tub, in which they can be shut up close and kept moist. If this can be done, there is no difficulty whatever in having these esculents early, as the roots may be dug up and packed together in a very small space. At one time the labour connected with getting a dish of the former was great, as it used to be covered with pots in the ground and huge beds of fermenting material over it to generate heat; but under the present system this can all be done without, as the roots may be treated in the manner just stated, and placed anywhere in which there is a little warmth. The only thing to avoid is too dry an atmosphere, which may be guarded against by keeping the box, tub, or whatever else is used air-tight, which is advantageous in other ways, as the Seakale comes better blanched and is more delicate. I have forced a good deal of Seakale packed in a large flower-pot, then covering it with another the same size and plunging it in a heap of fresh leaves, in which it received a heat of about 65°; in this the crowns soon started, and afforded plenty of heads for cutting. Rhubarb we get in abundance by digging a sort of pit close under the wall of a building which we partly fill with stable manure and set the roots on it, filling in around them with soil; after that they are covered close in with a shutter placed in a slanting position, and on this a quantity of

litter is put to keep in the warmth. Thus circumstanced, the sticks come up stout and strong, and the roots from being gently excited yield a long succession. Any close old shed likewise answers the purpose of forcing Seakale and Rhubarb, as there they can be shut in and a fresh heap of fermenting material added at pleasure.—S. D.

Onion Culture.—In the first place good seed is indispensable, and this obtained, proper cultivation will ensure success. There are two methods which I have followed, either of which I can recommend: First, select the plot on which the Onions are to be grown, and if this had been done a month earlier so much the better. Trench the ground 18 in. deep, putting into it plenty of manure fresh from the stables, or, what is greatly to be preferred, from the piggery. The other method referred to is to select ground on which Celery is growing. When this has been earthed up for the last time put 8 in. or more of good manure between the ridges and dig it in; about the end of February spread about 1 in. of wood ashes or burnt rubbish and a good sprinkling of soot over the ground; work this into the soil about 3 in. or 4 in. deep, and work the ground over again to the same depth about a fortnight before sowing. The time for sowing must be regulated by the season and locality, but about the first or second week in March is a good time; do not, however, be too early. I never make any beds, but sow in rows 1 ft. apart. In some soils and localities the Onion maggot is very destructive. If it should make its appearance, sift through a $\frac{1}{2}$ -in. sieve a quantity of common coal ashes and spread these over the whole of the ground about $\frac{3}{4}$ in. deep. Soon after the Onions are thinned, water with liquid manure twice a week, unless the season is wet or the soil very heavy, in which case once a week will be sufficient. If these instructions are followed a good crop will be the result.—D. WALKER, *Dunbarian*.

Sprouting Broccoli.—The recurrence of several severe winters in succession has brought the hardier kinds of Broccoli and winter greens prominently into notice, owing to the tender kinds being so much cut up, and the old purple sprouting Broccoli is again coming to the front, as a most useful addition to our list of spring vegetables, for, except the objection raised to its colour, there are few more trustworthy or productive vegetables grown. It produces an immense quantity of sprouts in succession, which, when other tender Broccolis fail, are a great boon to the kitchen gardener who has a large demand for vegetables to meet. I find it best grown as much exposed as possible in an open sunny position; under such circumstances it keeps dwarf and forms a densely-furnished crown, and in rather poor soil it becomes so firm and matured in the stalk as to be able to withstand severe frost with impunity. We planted last summer a quantity of this variety, 2 ft. apart each way, in July, in a very open, bleak position, and although they have been rather severely tried by frost, of which we had on several nights over 20°, they are not in the least injured, and they promise to well repay the little labour they have received. I feel sure that we should grow more largely the hardy kinds of Broccoli and Kales; for, with the experience of the past few winters before us, it is well to be prepared with a good supply of hardy vegetables able to withstand the trying ordeal of our winter months, and amongst them the old purple sprouting Broccoli is indispensable.—J. GROOM, *Linton*.

NOTES AND READINGS.

I have, perhaps, said some unkind things at times concerning "florists" and their flowers and their "standards of merit," &c., but I have never perpetrated any satire upon them like the act of that man in THE GARDEN last week, who was found weeding the double Dahlias out from among the single ones. (It might have been any other florist's flower). I do not presume to understand all the points of a good Dahlia, but if florists were agreed upon any one point, it was, that the flower ought to be double—perfectly double, and anything approaching the type of those figured in THE GARDEN would have been regarded as "rogues"—"windmill" productions that should be sent to the rubbish heap without further consideration, but here we have the same acquiring a name and a reputation through a kind of accidental re-discovery, and they charm us with all the force of novelty. They are indeed very pretty, and we have heard them spoken of during the past year in terms of highest praise on account of their beauty and usefulness as cut flowers, for which purpose the large double Dahlia is all but useless. On the plant in the foreground of a shrubbery the double flowers look well enough, but as cut flowers they are voted "vulgar," thanks to the degree of "size and perfection" to which they had been brought. A "button-hole" Dahlia seemed an impossibility, but here we've got it—quite as good or better than the Anemone japonica. They will be a rich addition to the

herbaceous border in autumn, and will doubtless soon be extensively grown as they deserve to be.

The increasing and reprehensible practice of re-christening old and well-known vegetables after the firm that offers them for sale is one that all gardeners and others ordering seeds should set their face against. Our more noteworthy seedsmen are not guilty of the practice, but there are firms claiming a position in the trade who are. We have at the present moment a catalogue before us, the author of which, had he lived in Nebuchadnezzar's time, would have deserved to be put in the lions' den. The catalogue in question is well got up, but the re-christening is carried to a length in it that is perfectly disgusting. There is hardly a single vegetable of note but one or more varieties are offered named after the firm and prominently figured or noted, not one of them probably that is either new or "improved." They are old and well-known kinds simply re-named, and probably sold out of the same bag, the only substantial difference to the buyer being that when he buys them under their new name he has to pay more than, for the seller takes care to enter them under their proper names as well. Not one of these members of the trade dare submit their so-called "own productions" to any competent tribunal or to the test in any experimental garden to see if there were any justification for a new name.

An instructive commentary on modern fruit tree pruning is that confession of a correspondent in the *Chronicle*. "Eight years ago," he states, "I planted my garden with good healthy pyramids of Apples and Pears. Every summer in July they have been top pruned. A splendid crop of green shoots has followed, but no fruit. I pointed this out to my gardener and asked him whether he thought the pruning and the absence of fruit had anything to do with each other, and he replied that it was the regular thing to do. I then said, 'Suppose they were not to bear for the next ten years would you still do it?' He said, 'Yes, I would.'"

The answer given to this correspondent by the editor of the paper in question is that in the "greater proportion of the so-called pruned and trained trees in the country, especially pyramids, it will be found that there are far too many branches; they are mere bushes, the tops only exposed to light and air, and producing nothing but a plentiful supply of shoots; whether pruned in summer or in winter, no amount of pruning of these shoots will ever induce these trees to bear fruit." This is quite true, and the same facts have been dwelt on sufficiently in the *GARDEN* in times past, and almost in identical language; but what a commentary on our modern scientific fruit tree culture is the fact, if true, that the greater portion of our trained bush trees are useless scrub. Why is it so is a question well worth asking.

"D., Deal," has elsewhere been writing on science in connection with horticulture, and wonders how, if science has had much to do with horticultural practice, gardeners are all at sixes and sevens on mostly important horticultural practices. "D., Deal," is not the only one who has been struck with such reflections. We fear the answer is that horticulture advances on truly Baconian principles, and consequently the practice comes first and the "science" afterwards. Scientists do accomplish good work, but as far as horticultural practice is concerned they have done little more than "report progress."

Past experience, when correctly chronicled, weighed, and digested, is no doubt valuable; but the pioneers of horticulture have been to a great extent left to grope on in the dark, and professional scientists and physiologists have ever been willing to follow them and adapt their teachings to their discoveries. But we are not going to deny either that gardeners do grope very often in the wrong direction and without any clear conception of what they want. Look at the Vine border controversy, for example. All gardeners have vied with each other who could invent the most "proper" and expensive border, but it has been proved clearly enough that the grand border theory was all vanity and vexation of spirit. We hear a deal less now of fibry turf from an "upland pasture" (we never, by the way, could learn the difference between an upland and a lowland pasture), of aerated, heated, stratified, and other borders. It has been a serious business though, this one of extravagant border making.

It has been an obstacle to gardening, nothing less, for it has been extended from Vine borders to wall tree borders, and from these to fruit tree borders generally, and it has crept in principle into many of our garden operations in a way to create difficulties and obstruct gardening to a serious extent. There are gardens in the most favoured fruit producing counties of England where every ounce of soil for the fruit tree borders round most extensive kitchen gardens has been removed at the gardener's suggestion to make room for fresh loam from the pastures, brought thither and used at enormous expense, when the simple trenching and enriching of the common soil would have been sufficient. There is undoubtedly a good deal of "rule of thumb" work in our "high class" gardening, so called, and this fact accounts for much of the vexatious differences of opinion that exist in garden practices, and gives outsiders a handle for the cynical criticism that is frequently levelled at the contrariety and dogmatism that exists among the exponents of horticulture.

A correspondent of a contemporary writing in favour of the bedding-out system seems rather to have forgotten the antecedents of that system. He says, and very truly, that "it is only those of one idea who would restrict us to one or the other system." Granted; but which side has developed or defended the "one-idea" system? and which side has advocated variety? The "bedding-out" fraternity cannot deny that the one-idea system is exclusively their own. What variety they have added to it has been suggested by the other side. There is hardly a garden of note where bedding-out was carried out extensively that could boast of a collection of good, hardy herbaceous plants a few years ago, and there are plenty that are without them yet. The one-idea men were those who converted their herbaceous and shrubbery borders—aye, and even their Vine and Potato borders—into bedding borders, and banished every other species off the place to make room for one idea—the planting of a few species that had but one single quality to recommend them, and the great drawback of having to be increased and re-planted every year.

The consequences of the "one-idea system" are that it has produced a class of gardeners who are deficient in knowledge of any other phase of flower gardening; this is a fact that is generally acknowledged, and we have plenty of examples of it. One of these has been making a border of hardy flowers. "In the spring we sowed patches of Mignonette, and also of two beautiful annuals—*Browallia elata* and *Collinsia bicolor*. There were in addition a goodly number of East Lothian Stocks and Evening Primroses, raised from seed, which, by the month of July, were very pretty, and in point of beauty and effect simply eclipsed every herbaceous plant in the garden." One may leave the reader to judge what sort of collection of hardy plants this writer must possess, or how much he knows about them, since in his experience patches of Mignonette and two or three common annuals "eclipse every herbaceous plant in the garden!" At mid-summer when the hardy garden is at its best, and when numbers of grand things are in flower, such as even the most bigoted "bedder out" who knows anything could not do otherwise than admire, a *Collinsia bicolor*, a *Browallia*, and a few Stocks eclipse the sum total of the beauty and variety of the hardy garden!

The vitality of this Lily bulb question is astonishing. Practically, so long as cultivators know that Lilies only succeed properly when they are permitted to form and mature a healthy annual growth, and that they should be transplanted before young roots form, it does not matter much to them whether the bulbs are renewed annually or not. To those who are interested in this matter, however, the question might be put—is the Lily bulb a bud? and what is a bud? According to physiologists, buds are that portion of a plant which produces flowers or growth the following year, and with few exceptions, if any, the buds are renewed annually. Lilies are no exception to the rule, according to Lindley and others, and whatever disputants may call a bulb, there can be little doubt but that a new bud is formed annually, the old bulb perishing at the same time, partially or altogether, by shedding its scales or decaying.

PEREGRINE.

Cold in Valleys.—Two years ago you allowed me, says the Rev. F. W. Stow in the *Times*, to remark on the extreme tempera-

tures experienced in valleys compared with the hill sides immediately adjoining. Yesterday's extreme frost gave another instance; for while at the Aysgarth Vicarage, Bedale, Yorkshire, on the hillside the lowest was 3° below zero, at Sorrelsykes House, in the valley, 9° below zero were registered, and in a low pasture near the brook 13° below zero. All the thermometers are good and in perfect order, and properly protected from radiation, 4 ft. above the ground. At 9 a.m. the mercurial thermometer at Sorrelsykes stood at 8° below zero, here 18 below. In Switzerland much greater differences have been recorded. Last winter Colonel Ward, a well-known meteorologist, registered in the valley at Rossinière (near Chateaux D'œx) a temperature of 37° below zero, while 100 ft. higher it was not lower than 13° below zero.

ORCHIDS.

ORCHIDS AT SELBORNE, STREATHAM.

IN Mr. Southgate's garden there is a large and thoroughly representative collection of Orchids, the culture of which is very intelligently carried out. Though it does not contain many exceptionally fine specimens, the health and vigour of the plants of all sizes are worthy of note. This is the more remarkable, too, as the aspect of the houses—a westerly one—is not the most favourable for Orchid culture. The houses, or at least the compartments of one long range, are about a dozen in number, and each is devoted to such classes of Orchids as require to be treated separately. Much has been said and written about the culture of *Phalenopsis*, but we never remember seeing such healthy and vigorous plants as those grown here in a stove containing a mixed collection. The plants are grown in baskets suspended near the roof, and the large size and thick texture of the spotless foliage indicate that such treatment is all that is needed. Nearly all the cultivated kinds are represented, but *P. Schilleriana*, *amabilis*, and *grandiflora* are the finest. The adjoining house is occupied chiefly by *Dendrobia*, among which we remarked some rare kinds, notably *D. Brymerianum*, the scarce new species with the singular long fringe on the lip. *D. Findleyanum* was in flower, as was also the beautiful hybrid, *D. Ainsworthi*, raised by crossing *D. heterocarpum* and *D. nobile*. That difficult-to-manage kind, *D. Dalhousianum*, was better than we have seen it for a long time, the bulbs being remarkably robust. It is allowed but little pot room, but plenty of heat and moisture in the growing season. *D. Ruckeri* is a variety not often seen; it seems to be in the way of *D. luteolum*. A very fine form of *D. nobile* named *superbum* was conspicuous, the flowers being larger and the colours brighter and more clearly defined than in the type. Many other kinds too numerous to mention, including such pigmies as the curious *D. senile*, we observed, all in a flourishing condition, in this house. In the next compartment we noted some excellent plants of the rare *C. Dowiana*, reputed so difficult to grow well; also of *C. lobata* and some rare *Sobralias*, such as *S. Cattleya* and *sessilis*.

The cool Orchids in the next house were particularly fine and well grown, and though there were not at the time of our visit many flowers expanded, the numerous flower-stems arising from the plump bulbs indicated what a display there would be shortly. *Masdevallias* are made a speciality of, and we observed here a capital way of growing such kinds as *M. Chimera*, *M. nycteria*, and similar sorts. It consists of a trough-like trellis basket, semi-circular in outline, apparently constructed of teak, which resists well the action of excessive moisture. We have seen the same style of basket before in Sir Trevor Lawrence's collection and other places, and are convinced it is an excellent way in which to grow those kinds that have a tendency to produce their flowers in a downward direction. The East India house adjoining is occupied by a fine collection of *Vandas*, *Aerides*, *Saccolabiums*, and *Lady's Slippers*, which latter seem to be appreciated much by Mr. Southgate, and they are grown admirably by Mr. Salter, his gardener. Among them we noted such fine kinds as *Cypripedium selligerum*, *euryandrum*, *Druryi*, *Haynaldianum* *levigatum*, *Bullenianum*, and *Domini*. Among the *Vandas* was Boxall's variety of *V. lamellata* finely in flower, the same plant having received a first-class certificate at South Kensington a short time previously. *V. Goweræ*, *Cathcarti*, *Hookeri*, and several other rare kinds may also be seen here, and the pretty little *Utricularia Endressi* was growing finely in suspended baskets in this house. The next, a rather cool house, was occupied chiefly by *Bolleas*, *Pescatoreas*,

Huntleyas, *Batemannias*, and similar genera, which were, like the other classes, in fine condition. We must not omit to mention some remarkably fine plants of *Odontoglossum vexillarium* grown in a temperature of about 60°.

W. G.

RESTING ORCHIDS.

IN speaking of resting Orchids, particularly the *Dendrobiums*, "J. G." (p. 142) touches upon a very wide field of practice, for the *Dendrobes*, comprising as they do such an assemblage of species from so many parts of the world, where the conditions under which they naturally exist are so different, embrace in their requirements at the hands of the cultivator treatment as different almost as that found to be necessary to give to the whole family of cultivated Orchids. Taken as a whole, there is no section of Orchids that requires or will bear so much, or so long a rest, as the *Dendrobes*, or with few exceptions, that will stand without injury a temperature so much lower than that which they are subject to in the growing season in their native habitats. Take, for instance, *D. Devonianum*, a kind that many growers find difficult to keep in strong condition. I had one particular plant of this species, a more than usually fine, highly-marked form, that I regularly kept back every spring in a cold Vinery, started late, so as to retard its blooming for exhibition until the middle of June. This I did for eleven years out of twelve in succession, and the plant from a comparatively small one kept on increasing in size and strength up to the last, when it often produced four and five flowers from each node on the strongest bulbs. As those who are acquainted with the growth this species makes before blooming will suppose, each season the young shoots commenced to grow seven or eight weeks before the plant was put in heat to bring it into flower.

A plant of *D. densiflorum* was during the greater part of the above time treated just in the same way, all but it had a shorter time in heat before its flowers opened. *Cattleya Mossiæ*, *C. Skinneri*, *Lelia purpurata*, *Chysis Limminghi*, and *C. bracteata*, with many other Orchids, that, if they had been allowed, would have flowered much sooner, used to continue doing better and getting stronger than others of the same species that used to flower and make growth earlier. I am convinced that very many Orchids that thrive for a time and then in a few years become sickly and die out would continue in a healthy vigorous condition if they had a longer rest by being subjected to cooler treatment for a longer period each year. I do not mean that wearing out and premature death so often seen with these plants are exclusively attributable to this cause; but observance over a considerable length of time leads me to the conclusion that it is one of the causes that bring about their destruction.

It is unquestionable that where Orchids are grown on common sense principles, with as much light and air as they require, very many species will bear with advantage a lower temperature whilst at rest than they are subject to in their native countries, and such, be it observed, not the strongest constitutioned species or the easiest to keep in health; for example, *Phalenopsis amabilis* and *grandiflora*, where these are found to keep for, say, a dozen or a score of years full of healthy vigour, it will almost invariably be found that it is where the plants are kept cooler than usual, so as to give a lengthened time of rest.

T. BAINES.

***Dendrochilum glumaceum*.**—One of the finest specimens we have seen of this extremely elegant Orchid is now at its best in the Kew collection. It is growing in a pot some 8 in. or 9 in. across, and bears several scores of its dense spikes of semi-transparent, whitish flowers, the delicious perfume of which alone is sufficient to recommend the plant as a subject suitable for pot culture. It is placed in the warmest compartment of the Orchid house along with East Indian and other hothouse kinds, conditions under which it has attained in a few years its present fine dimensions.—W. G.

Varieties of *Cattleya Trianae* and others.—The following *Cattleyas* in flower in Mr. Corning's collection at Kenwood, Albany, are worthy of note: *Penelope*, a superb variety, with blush sepals and petals, and abroad and beautifully fringed lip of a rosy tint and a lemon throat; the general appearance of the plant is similar to that of *labiata*. *Pandora*, a scarce variety, large in growth, and with the *Bassetti* type of leaf and bulb; the sepals and petals are of a rose colour, and the lip crimson with orange throat; this form, however, possesses but little to recommend it but its rarity, as the flowers are too narrow and flimsy. *Bogotensis* is a splendid kind, with a well formed and brilliant coloured flower. *Corningi* is a desirable kind, sepals and petals pure white, and a lip of a light rose. *Colemani*, a very fine large-flowering variety. *Daisy*, a grand variety of *Trianae*; it first flowered in Mr. Rand's collection, and was named and described by him in his "Orchid Culture."

Dodgsoni, a beautiful form with white sepals and petals, lip crimson, with orange throat. Maxima, a good and useful species for winter cutting. Pescatorei, a very fine variety of labiata. Tawassagunshée, similar in form to the preceding, but the flower is beautifully fringed, and the lip margined with white. Warscewiczii, delicata, and the splendid variety superba are good free-flowering kinds; their pretty delicate tinted flowers contribute largely to render the Orchid houses gay.—F. GOLDRING, Albany, N. Y., U.S.A.

Chysis Chelsoni.—This splendid hybrid Orchid is at present flowering in Mr. Corning's collection at Albany, N. Y. The flowers partake of the character of both its parents, *C. bractescens* and *C. aurea*, but the spike is entirely that of *C. aurea*; it is stronger growing than either of its parents; the bulb made this year measuring 26 in. in length by 6½ in. in circumference, and has produced nineteen flowers from two spikes.—F. GOLDRING.

NOTES OF THE WEEK.

Two Sweet-scented Stove Shrubs.—In the Palm house at Kew two species of *Toxicophlea* are now attractively in flower, and their sweet perfume quite pervades that portion of the house in which they are growing. One is *T. spectabilis*, a tall-growing shrub with deep green oblong leaves of leathery texture, and from their axils spring dense clusters of pure white blossoms resembling in size and form those of an *Ixora*. The other, *T. Thunbergii*, is trained to the roof of the house, the long slender branches being furnished with small oval leaves likewise deep green and thick in texture, but much smaller than those of the preceding. The flowers, too, are considerably smaller as well as the clusters, but they are more dense and numerous, a circumstance which compensates for lack of size. Both are natives of the Cape and are well worthy of culture, flowering as they do in winter when sweet-scented flowers are especially welcome. They are of easy culture, and may be grown successfully in an ordinary greenhouse treated as other pot-plants. A good illustration of *T. spectabilis* was given in *THE GARDEN*, Vol. XII., p. 14. The generic name, we observe, has been changed at Kew to *Acokanthera*, which is scarcely more euphonic than the older and better-known name.

Habrothamnus Newelli.—This new variety we saw this week in fine flowering condition in the gardens at Gunnersbury Park. It is a seedling variety raised by Mr. Newell, of Ryston Hall Gardens, Downham Market, and lately distributed by Messrs Veitch, of Chelsea. It is a robust growing plant with neat smooth foliage, very free flowering even in its young state, bearing dense terminal clusters of bright crimson flowers larger and more brilliant than those of the well-known *H. elegans* or *H. fasciculatus*, whose habit it most resembles. As an ornamental, conservatory, and greenhouse climber it is found to be one of the most useful of subjects. Mr. Roberts has it growing side by side of the other kinds against the back wall of the Rose house, and the superiority of its flowers, as regards colour, is therefore apparent.

Freesia refracta alba.—Too much cannot be said in commendation of this beautiful Cape bulbous plant, a fine example of which is now in flower in one of the compartments of the T range at Kew. It is an Iridaceous plant with the habit of an *Antholyza* or *Montbretia*, the foliage of which is narrow and arranged in flattened tufts. The flowers are produced on slender stalks just overtopping the foliage, and number from three to six in a loose cluster. They are tubular thimble-shaped, about 1½ in. in length, and are pure white save a blotch of orange-yellow colour at the inner base of the tube. The perfume is delicious and sufficiently powerful to be perceptible at a distance from the plant. They are extremely useful, in a cut state, for which the elegant manner in which they are borne on the slender stalks admirably adapts them. The plant may be easily grown in an ordinary greenhouse, but like other Cape bulbs it requires attention with regard to ripening the bulbs and resting them after flowering. It is known by no fewer than nine other names, but that used besides the one we adopt is *F. odorata*. There is one other species in the genus—*F. Leichtlinii*—rarer, but equally beautiful.

The Conservatory at Kew.—Never before in February do we remember seeing such an attractive display of flowers as there now is in the conservatory (No. 4) at Kew. The stages are filled with a judicious selection of forced plants, not wholly of the ordinary type, but such as are not generally seen under glass. These interspersed with ordinary greenhouse plants, such as *Cinerarias*, *Primulas*, as well as shrubby plants, make a highly interesting collection well worth a visit. Such annuals as *Cornflower*, *Purple Scabious*, are still in bloom, as indeed they have been throughout the winter. The *Camellias* are

flowering beautifully this season, and have already a gay appearance, while the atmosphere is filled with a delicious fragrance that of *Boronia megastigma* everywhere predominating.

Semi-double Cyclamen.—Mr. Dickson, of the Central Avenue, Covent Garden is now receiving from the market growers a beautiful new *Cyclamen*, with a double row of pure white petals to each blossom; it is therefore, more useful for some purposes than the older white variety, and the large, and handsomely marbled foliage considerably heightens its beauty.

Brownea coccinea.—At p. 116 we had occasion to notice the flower of the splendid *B. grandiceps*, which is still in flower at Kew. There is another species, *B. coccinea*, also a native of Venezuela, finely in flower in the Aroid house (No. 1). Unlike the other, the flower clusters of this are small, but more numerous and of a bright vermilion colour. They are produced chiefly from the bark of the thick branches. No other plants convey a better idea of the gorgeousness of the flowers of the Tropics than these arborescent leguminous plants, and nowhere can they be better seen in cultivation than in such spacious houses as those at Kew.

The Fringed Iris (Iris fimbriata).—This pretty species flowers long before its numerous congeners of the hardy flower garden come upon us with their many and varied hues. Its flowers, which measure about 3 in. across and beautifully fringed at the edges, are of a delicate lavender hue, with here and there a conspicuous blotch of orange-yellow. The foliage is broad, of a bright shining green, and elegantly recurved, so as to render this species very suitable for pot-culture. Plants of it are now in flower in the cool portion of the Cactus house at Kew, for, being a native of China, it must be grown in a greenhouse temperature.

A Double Bouvardia.—“There, they have been and gone and done it!” as the cockney says. I really thought there was one graceful flower in this world which hybridists would not “double up.” I wish them joy of their double *Bouvardia*, which I trust may turn out as poor from an horticultural point of view as it is from mine.—J. A.

Rondeletia cordata.—A fine example of this stove shrub, perhaps better known under its old name of *Rogiera*, we noticed in flower the other day in the Palm house at Kew. It is compact in habit, and bears a profusion of dense clusters of rosy tinted blossoms from the axils of the leaves, but, unlike those of its congener, *R. gratissima*, they are devoid of scent. It is grown well at Kew in a large pot, though, as in the case of *R. gratissima*, it is more satisfactory planted out in free soil and trained to a wall or partition, so that the branches may become thoroughly ripened, and thereby ensure a good crop of flowers.

Prize Cups.—Mr. W. Holmes sends us satisfactory evidence that the cups offered by the Borough of Hackney Chrysanthemum Society really cost more money than they are stated to represent. The difficulty of prize cups *versus* money is easily got over by offering the prize winner his choice in the matter.

Pipes and Boilers in Frost.—Mr. Latimer Clark lately wrote to the *Times*: The breaking up of the present frost will be a busy time for plumbers and builders, and there will be the usual annoyance and expense caused by the bursting of water pipes and the percolation of snow through roofs. It should properly be the duty of builders to foresee and provide for these contingencies in the first instance, but they appear systematically to neglect this part of their functions, and to regard such accidents as inevitable, or possibly desirable. It may, therefore, be useful to point out one or two methods, the result of experience, by which some of these evils may be diminished. Gas and water pipes should be buried 2 ft. in the ground, at which depth they are safe from frost in most parts of the kingdom. There are, however, many cases in which pipes cannot be so buried, and must of necessity be exposed to frost, as in crossing areas, &c. When this is so they may be prevented from bursting by inserting within the pipe a small thin tube of gutta percha or india-rubber containing air, the tube being carefully sealed at the ends and extending the whole length of the pipe. It may be held in position at intervals by copper wires brought to the outside at the joints and soldered in with them. A similar piece of india-rubber tube will entirely prevent the blow and noise occasioned by the sudden closing of water taps, which is sometimes disagreeable. It may be inserted in a short branch pipe anywhere near the tap. Hot-water boilers can only be efficiently protected against bursting during frost by a safety valve, but perfect safety may be assured if the servants can be induced to draw off a quart of water from the boiler before lighting the fire. If this be possible it proves that the pipes are not frozen, and the fire may be lighted with safety.

THE GARDEN IN THE HOUSE.

FERNS CUT AND IN POTS AND BASKETS.

Of all plants used for decorative purposes, Ferns are unquestionably the most serviceable. Who would think of making up a bouquet or dressing an epergne or vase without a spray or two of Maiden-hair, the demand for which in the market almost defies calculation? To have these good and lasting, special treatment is required to get them of stout texture and firm, for without these qualities they wither and fade in a very short time. The point is to grow them free and well in a moist, genial atmosphere, and to afford them plenty of light by having them up near the glass, where they can also have an abundance of air, which assists greatly in hardening the stems and bringing about their maturity, for if cut before they arrive at that stage they will not last any time. The most choice for bouquets is *Adiantum gracillimum*, the fronds of which are somewhat smaller than those of the normal type, and the leaflets more minute. The one I like best for working in among flowers is *A. Capillus-veneris*, the tips of the fronds of which just peeping out are most charming, as are also those of *A. setulosum*, which form a capital background for two or three flowers to wear in the button-hole, their shape, size, and spread just fitting them for the purpose. This variety looks well in a small wire basket or Cocoa-nut shell, through which, if perforated, the fronds find their way, and produce a very pretty effect. Like all the foregoing, it does well in a greenhouse temperature. The boldest of the *Adiantums* is *A. farleyense*, the colour of the fronds of which is unique, varying in tint according to age. Unfortunately, these fronds are not very lasting in a cut state, but as an ornamental pot plant *A. farleyense* is quite unrivalled. For dressing epergnes or large glasses *A. tenerum* and *A. concinnum* are the most striking, but to be durable when so used they must be ripe. The first named of these is a very handsome species, after the way of *A. cuneatum*, but larger, and having a less number of leaflets.

All these *Adiantums* admit of ready increase by division, which is best carried out about this time, just as they are starting, as then the injured parts soon heal over, and the young plants become quickly established. The soil best adapted for *Adiantums* and most other Ferns is a mixture of tough, turfy peat and loam, in the proportion of two-thirds of the former to one of the latter; to which a good sprinkling of sharp silver sand should be added to keep the whole porous. To ensure free drainage, a great point in Fern cultivation, nothing is better than ordinary crocks made of broken pots, of which at least not less than 1 in. in depth should be placed in the smaller sized pots, and double that quantity in those of larger size. Although Ferns take and require a good deal of water when well rooted and in full growth, they only need just sufficient during the earlier stages to keep the soil moist, a condition that may be maintained by frequent syringing, which, by creating a moist atmosphere, is highly favourable to them at this season.

Next in point of merit to the *Adiantums* just enumerated is the *Onychium lucidum*, a Fern which bears rather plump, slenderly divided, shining deep green fronds, remarkable for their feathery lightness and elegance. Grown up near the glass where they get plenty of light, they become firm and stand well in a cut state, and removing the fronds does the plants little harm, as they produce others freely and in rapid succession. *Pteris serrulata* is another Fern that associates well with flowers, and is a very hardy kind that succeeds admirably in a greenhouse temperature, as does also *P. cretica* and its variegated form *albo-lineata*, both of which are likewise most valuable in a cut state. These send up great numbers of fronds, the fertile ones being taller and narrower than those that are barren, which are serrated at the edges, and much the best looking. *P. scaberula* is a great favourite with many, but beautiful as it is as an ornamental object in pots and baskets, I do not care for the fronds when cut, as although finely divided, they are not loose and open enough. The habit of the plant, however, renders it peculiarly adapted for running and trailing over the edges of rocks, or the sides of pots or pans suspended, conditions under which it is seen to advantage. Another elegant Fern that it is most desirable to cultivate for the sake of its fronds for cutting is *Davallia tenuifolia*, which is something after the manner of *Onychium lucidum*, but is even more striking and beautiful than that well-known kind. The foregoing are the best Ferns in a cut shape.

For Grouping with Plants.—The following are the most deserving of notice: First and foremost come the gold and silver *Gymnogrammas*, such as *G. chrysophylla*, *G. Mertensi*, *G. Calomelanos*, and *G. peruviana*, all of which make handsome specimens and are densely powdered beneath, which renders them very effective when seen under artificial light in vases on the dinner-table, a use for which small plants of these Ferns are specially adapted. *Lomaria gibba* is also suitable for the same purpose, as are likewise *Blechnum corcovadense* and *braziliense* in a young state. The habit of these is regular and of a shuttlecock form, the only marked difference in the appearance of the two consisting in *B. corcovadense* having fronds of a beautiful bronzy-pink when they first appear, while those of *braziliense* are green. The last-named does well in a greenhouse temperature, but the other requires that of an intermediate house or stove, as does *L. gibba*, which, if kept free from thrips, is always handsome. Among *Aspleniums* the best for pot culture are *A. bifidum*, *A. caudatum*, *A. bulbiferum*, *A. lucidum*, and for a vase or basket *A. flaccidum* is very effective on account of the exceedingly graceful manner in which its fronds arch and depend over the sides. *Goniophlebium subpetiolatum* and *G. subauriculatum* are likewise excellent basket Ferns, as their fronds grow to a great length and are very pendulous. Another fine kind for the same purpose is *Nephrolepis tuberosa*, which will live and grow freely in a very small amount of soil and in any house from which frost is excluded. The fronds of this species are very narrow and drooping, and plants of it spread about by means of string-like creeping stolons so rapidly that they soon cover a large space, which they furnish completely and clothe with much beauty. *Gleichenias*, too, are capital for pans or baskets for suspending, as they trail about by pushing out wiry, fast-creeping stems that spread their way over the sides of anything in which they may be grown, and, if allowed to have their own way and depend therefrom, they produce a most pleasing effect.

The best way to propagate these *Gleichenias* is to layer them in pots filled with rough fibry peat and sand, on which the creeping roots should be coiled and pegged, when they soon attach themselves by forming fibres therein, and may then be taken off and removed. Being mostly natives of Australia and New Zealand, they do not require much heat, but succeed well in a temperature of 50° during the winter. What they do like is shade and a moist atmosphere, which keeps thrips from them—insects that are very injurious if allowed to remain long unmolested. The safest and most effective remedy for such pests is Tobacco smoke, which, if repeated at short intervals, destroys them without hurting the plants. Turtle scale, which also troubles these and other Ferns, can only be got rid of by dipping the heads of the plants in nicotine soap or picking them off.

S. D.

DINNER TABLE DECORATION.

As plants are largely used for this purpose, especially Maidenhair Ferns, and as only well-grown specimens will answer the purpose, it is to be regretted that plants in many cases should be almost ruined through their roots being crowded into receptacles far too small for the size of the plant used. The following instances will serve as illustrations, viz.: four vases 3½ in. deep by 6½ in. wide. Plants to fill these vases would require to be grown in 6-in. pots, which on an average are 6 in. deep; this would necessitate the cutting away of about half of the ball. I venture to say that many a gardener with large collections of plants at his disposal would scarcely like even four of them so used. He would think it a grim joke to be told they were only wanted for one night; he would know, however carefully he repotted them the next day, and with the best of treatment, they would lose three-fourths of their foliage, that the new growth would come weakly, and that it would take at least four months to bring them into good condition. Take another instance, in which the receptacle is 1½ in. wide, 3 in. deep, length at top 7 in., bottom 4½ in., with the outside covered with burnished glass. If Maidenhair is used it requires a well-grown plant in a 4½-in. pot; the average width of the crown will be 3 in. To get the plant into the receptacle the ball must be reduced to the required depth and the soil from the sides be removed by the fingers; the plant is then laid on the bench and flattened by the back of a spade, taking care in pressing it home not to force out the sides of the receptacle, so as to fracture the glass, or cause it to tumble out. Can it be said that art is advancing with rapid strides among us while thus it treats its hapless victims, and artists show such profound ignorance of the requirements of the plants suitable to embellish their designs? RUSTICUS.

THE FLOWER GARDEN.

NARCISSI IN THE SHRUBBERY.

THE accompanying little cut will explain the subject we have often alluded to in THE GARDEN, and that is the growth of plants, like that shown in the illustration, between the shrubs in a well-spaced shrubbery, not as single specimens or in dots, each with a label to it, but each as a little colony or spreading group. The present overcrowded mode of forming a shrubbery will probably at no distant date be given up by all who care for the beauty of shrubs and low trees. The many fine things among our hardy shrubs, and the good climate we enjoy in which to grow them, should make us care more about these, grow them better, let each form a specimen or a group under the conditions best for it, the plants not mutilated, but well grown and furnished to the ground. Under such conditions they can never touch each other, because, merely to enjoy the beauty of their form and allow each to assume its natural shape, it would be necessary to have spaces between, such as do not occur in what we have ventured to call the "choke-muddle shrubbery;" those spaces should be alive with flowers, carefully chosen, hardy, and beautiful. Some poor, thoughtless critic in a contemporary has been mumbling angrily at an expression of ours with reference to this subject—"an open-air conservatory." Not seeing the possibility of this, he thinks it must be nonsense, but, as anybody with the slightest experience and knowledge of shrubs must know, it is as feasible as planting Coleworts, and a beginning of it may indeed be seen here and there already; but the crowding, and the digging, and cutting and common mixture of Privet and Laurel make the shrubbery so deplorable an affair generally, that this creature, whose true function was certainly not enlightening his fellow men by writing, makes a laughing-stock of the aspiration after a better state of things! Yes, and many times better than any indoor conservatory, for the simple reason that our flora is quite as rich for the outdoor as the indoor conservatory, and that we abolish all artificial surroundings—red pots, stages, pipes, &c. Any wide belt of shrubbery might be made into the most delightful type of garden, varied, broken, and not dug on the edge; not stiff in any part; full of flowering things as well as beautiful evergreens, the turf spreading in among them here and there, and shade-loving, or shelter-loving, and many kinds of hardy plants happy among them, and all the better for their companionship and mutual occupation of the same soil. Our little illustration shows a sketch after Nature of a spot in such a shrubbery—a colony of Narcissi having spread over the space between an evergreen Barberry and a Holly bush, both furnished to the ground, with no danger of crowding and with no need of mutilation.



Daffodils in spring in shrubbery

Begonia hybrida Frœbeli vernalis.—I received a tuber of this interesting winter blooming hybrid from its raiser, Mons. J. B. A. Deleuil, of Marseilles, in the course of last summer, but it remained quite dormant till the commencement of the month of December, when it began to start into growth, and opened its first flower on the first of the current month. It seems an exceedingly free bloomer, as my plant is already showing six spikes of bloom, although the number of flowers on each spike falls far short of what its raiser informs me may be expected from it, the spikes on some of his plants showing from fifty to sixty flowers. In this hybrid

the male blooms are of a more decidedly cupped shape than those of the type, and their colour of a more roseate hue. M. Deleuil informs me that he obtained this hybrid by fertilising *Begonia Dregei* with the pollen of *B. Frœbeli*, the seedlings, when in a young state, resembling in foliage that of their maternal parent, but when fully developed becoming almost identical with *Frœbeli*, save that the leaves are larger in size, lighter in shade, and more woolly in the stems.—W. E. G.

LILIES IN SHADE OR SUNSHINE.

I THINK that Mr. Wilson's letter to you of the 5th February gives a possible *rationale* of the facts I described. He says in one place "the really difficult time for Lilies is in the frosts we often have in the beginning of May." I can quite understand it. In some districts which are colder than this it is pitiable to see the foliage of such a Lily as *L. longiflorum* cut to pieces by the cold winds of spring; all its promise has gone, or at any rate a most serious injury has been done to the blossom of summer. Wherever this is to be dreaded it stands to reason that Lilies should not come on too fast. If they can get over "the difficult time of the year," they are safe, but it far better for them, I should say, to be comparatively backward than to have made a great advance from which they will be forced to recede. Now, I submit that it follows from this that a northern exposure may be better for Lilies in many cold parts of

England than that which lies open to the south, for what they are really safe from in such places is the wind, and not the sun; at any rate the sun does not bring them on so quickly that they feel the force of the wind; they get over "the difficult time of the year" in this manner, which they would not otherwise do. But it also seems to me to follow from Mr. Wilson's canon of Lily growing that in milder situations such a dread may be altogether disregarded. If you only have a mild and genial spring, and if you also have a garden where east winds are unknown, I fancy

in the shade must be altogether absent, and it becomes an open question, then, if the sun has not a great influence on them for good. Mr. Wilson also lays it down that "if one fact can be considered established in Lily growing, it is that the roots should be kept more or less active." I intend for the future to emphasise this in my mind a great deal more than I have hitherto done, for it tells me that if the bulbs of Lilies are planted late in the autumn in a dark and sunless spot, they may not be roused into activity before the rains and cold of winter attack them, and they may succumb from this cause. I think I can see why one set of Lilies in my garden did well when they were exposed to the sun, while others that were removed from its influence came altogether to grief. The roots of the first were probably in full action when the stress of winter came upon them; the roots of the others may not have moved at all before they had hard times to suffer. At any rate, whether rightly or wrongly, I am not so much surprised at my experience as I was before I read Mr. Wilson's letter, and I would sooner have a possible explanation from him than the dogmatic assertions of many persons who are not so careful as he is.

The experience of "S. D." would very often be borne out, I imagine, by other growers of Lilies, but its bearings on my case depend entirely on the locality to which he refers. I have never seen Lilies flourishing in the sun out of Guernsey and the Isle of Wight, and can quite understand why they should "dwindle away on the east side" in very many places. I think with "S. D."

that "it would be very interesting indeed to know under what conditions *Lilium auratum* grows so freely in Japan," but then we should know all of them, and not merely a part. I do not think it would do to argue from a practice in Yorkshire what is best for us to do either in Guernsey or in the Isle of Wight; and there may be different surroundings from our own in Japan which would utterly mislead us if they were to be left out of account.

I hope to experiment a little more, as Mr. Wilson suggests, but the freaks and fancies of Lilies are boundless, and the only thing one can be certain about is that from some occult cause or another the result will be different from any expectation regarding it.

St. John's, Ryde.

HENRY EWBANK.

I agree with the remarks of Mr. Ewbank (p. 96) that in the warmest place in his garden he had obtained his finest blooms of *L. auratum*. This has been my constant experience not only here, but in warmer climes as well. I had a bed, not made up specially for Lily cultivation, but for *Lobelia fulgens*, and in which *auratum* and various other sorts, such as *Browni*, *lancifolium album*, and *roseum*, were inserted all over it at a depth of 9 in.; they were planted at this depth partly to protect them from frost in winter and from the unusual drought in summer, as we were favoured with both extremes. The effect of the arrangement exceeded my expectations in every way, so well did the *Lobelias* and *Lilies* grow and bloom; the former exceeded 6 ft. in height, and the *Lilies* grew from 4 ft. to 7 ft. in height and produced a multitude of blooms, the plants of *auratum* being on an average from 12 in. to 15 in. in diameter; the other kinds were also relatively fine. The situation was in a very sunny spot; the daily warmth would reach 85°, and in that year there was no rain during the summer for fourteen weeks, and dews were almost as rare. The bulbs were without exception left in the ground over winter under a protection of Oak leaves, and the bloom was in the next season equally good; the growth was at the same time still more vigorous than at first, and the bulbs produced many new stems. But next winter some rats formed their nests in the soft ground under the leaf covering, and in the spring we found that they, in the absence of other food, had consumed the entire collection, leaving for our sole consolation the outer coverings of the bulbs only. Nevertheless, the loss confirmed our former experience in the matter of protection of tender things, and that is, never to cover up anything until frost has penetrated several inches into the soil; then you may safely cover up without having to fear much damage from these indiscriminating marauders. Lilies seem to love sunny quarters in preference to shady ones; their blooms, if not protected by some shading material, are, however, not so enduring, although here, again, Mother Nature is merciful, for she gives us a greater succession.

SYLVESTRIS.

PETUNIAS FROM SEED.

PETUNIAS are grown more or less in most gardens, but as a rule the seed is sown too late to get the plants strong enough for turning out by the middle of May. Although the seeds germinate more readily in frames with bottom heat, such treatment is not necessary, and if sown at once in pans and placed on a shelf in any warm house, it will be found that any so raised will not only be considerably in advance of those put in at the usual time, but that the plants will be short jointed and altogether more stocky and strong. To get such fine seed to do well, it is important that the soil should be made perfectly smooth and level, and when this is done, watered through a fine-rosed pot, so as to avoid having to wet the earth afterwards, till the young plants make their appearance. By adopting this course and covering the pot or pan with a piece of glass, so as to maintain an equable temperature and prevent evaporation, success will be certain. Even the most minute seed may be induced to germinate in this way, but in all cases where it is so small that it has to be sown on the surface it should have a sheet of paper laid over it to shut out the light for the first few days, after which it will require close watching, and must be uncovered immediately germination takes place. To encourage growth when up the young plants should be placed in a close frame or pit up near the glass, when they will soon be ready for pricking off into boxes of light soil or for potting singly, to be shifted again or planted out as required. Besides being serviceable for bedding, Petunias raised from seed are valuable for pot culture, as they afford plenty of variety both in form and colour, and make a fine display in a greenhouse or conservatory, either in pots or baskets.

In borders, the best way to grow them, or rather to support them,

is to get a very coarse piece of rabbit wire and cut it into lengths of from 2 ft. to 3 ft., and place one of these pieces round each plant so as to form a guard, when after a time the branches will find their way through the meshes and hide the wire with foliage and flowers. Grown thus, they make grand masses that are not blown about or stiff or formal in appearance. Some years ago the double varieties of Petunias made a great stir, and very beautiful they are, especially such as we see now, many of which are fimbriated and striped after the manner of Carnations. The best way for growing Petunias when wanted for greenhouse decoration is to plunge them in cold frames where they can have full sun, and after the middle of May to draw the lights off during the greater part of the day. By pinching back or beheading any that have been under glass and exhausted by flowering, and then setting them out in the open air, they will soon break again and come into bloom in the autumn, or a succession may be kept up by nipping out the points of the young shoots of a portion of the stock and then growing them on. Double kinds admit of being raised from seed in the same manner as the single sorts, but seeds should be from a good strain.

J. S.

DEAD STEMS.

DON'T cut down the dead stems too soon. In a garden over which I have some control it used to be the practice, as it still is in many places, as soon as autumn came to cut down all herbaceous plants, rake and clean up everything, and make all what is called trim. I put a stop to that practice and began to leave a few stems here and there; questions were asked; I explained that even dead stems, in my estimation, were better than bare monotony. The idea was caught at, and it was soon discovered that even dead stems and leaves had a beauty and a charm of their own. For instance, a large clump of *Spiraea palmata*, growing by the side of the pond, where it attains large dimensions, with its rich brown leaves, is quite a feature; farther on is a mass of the arching stems of *Polygonum Sieboldi*, still bearing numerous seed vessels, supported bravely by the leaves of certain *Irises* and *Gardeners' Garters*, the latter, I think, quite as handsome now as in summer. It also occurs in various spots, both isolated and supporting other things; farther on is a grand mass of *Telekia speciosa*, most distinct, its 5-ft. stems surmounted by pale brown seed-heads, which are most persistent, and supported freely by masses of *Astrantia*, *Iris*, *Thalictrum*, *Dracocephalum*, *Eryngium*, &c. In other places are dead stems and bright green leaves of *Ferulas*. By-the-by, I think that the stems of *Umbellifers* (*Rudbeckias*, *Echinops*, and the 8-ft. stems of *Centaurea babylonica*) should never be removed before spring, for to my mind their winter condition is almost their greatest charm. In another place the decayed leaves and dead stems and seed vessels of various *Funkias* come in for a share of admiration; not only do these dead stems lend a permanent feature to the winter scene, but an added one when frosted over with glistening rime, or when wrapt in a snowy mantle. They also lead us back to the beauties of the summer that is gone, and distinctly on to the one that is coming, and thus we may have our friends always with us. There are, however, some dead stems that even I could not yet bring myself to tolerate, but of these another day.

T. SMITH.

Nevery.

Some Plants from Algeria.—It may be worth while to record the size and weight of some large bulbs that are among the contents of a case of hardy and half hardy plants I have just received from Algiers: One tuber of *Cyclamen africanum* (of which I enclose a leaf) weighs 3 lb. 5 oz. The shape is irregular, but the tape passed round give a measure of 22½ in., the greatest length and breadth being 8 in. by 6½ in., depth 4½ in. The leaf may reach you shrivelled, but it now measures 8 in. wide by 7¾ in. long. The largest of some bulbs of *Scilla maritima* is 21½ in. in circumference, weight with leaves, 5 lb. 13 oz., but I have seen larger. In the same package I received some strong plants of *Orchis Robertiana*, about 20 in. high, well clothed with broad handsome foliage, and of *Ambrosinia Bassi*, a curious little Aroid. Its shoe-shaped flower is divided into two compartments, one containing 10 stamens, the other the pistil. The dividing partition prevents fertilisation, but insects, attracted by the nectaries, gnaw through it and make a passage for the pollen. This interesting note I have from my friend, M. Durando, botanist, of Algiers, who sends me the plants.—G. JEKYLL, *Munstead, Godalming*.

Cost of Herbaceous Plants.—Will "Peregrine" kindly give the addresses of a few firms who deal so liberally with their customers (see p. 31) as to supply herbaceous plants actually capable of being divided into several? My experience hitherto on receiving a consignment of this interesting family has generally been that the rule of

multiplication most zealously followed by the nurseryman renders any efforts in that direction on my part quite futile, not to say impossible. On some occasions when these flowering plants have got covered over in the process of placing them in their pockets on the rockery (though lost to sight to memory very dear), a fine sieve has been necessary to find them again. With regard to their cost, my belief is that the choicest Orchids are cheap in comparison with some of the Alpines I have invested in, their price, relatively to their bulk, ranging on a moderate computation at from ten to twenty guineas per square foot. The nurseryman who will supply fair plants at a fair price should have a brilliant future before him.—ROCKS.

Growth of Lily Bulbs.—I am sorry I cannot find time to say anything more at present in reference to this subject, as I am finishing a large picture of this garden in full bloom for the Royal Academy. The readers of my paper on Lily growth and of those which followed will sum up for themselves, but I hope no one will put my opinion on the subject on a level with that of Mr. Baines or Herr Max Leichtlin who have ten times the knowledge that I can yet possibly possess, and who are more likely to influence me than I them.—FRANK MILES, *Bingham*.

THE ABRONIAS, OR SAND VERBENAS.

THESE constitute a small genus of Californian plants, numbering about seven species of annual or perennial duration. They are of a dwarf trailing habit, and bear showy blossoms in dense Verbena-like clusters. Three kinds only are known in cultivation, viz.: *A. arenaria*, a perennial having procumbent trailing stems and dense clusters of golden-yellow flowers; *A. umbellata*, an annual also with succulent trailing stems and dense terminal clusters of rosy-purple and slightly fragrant flowers; *A. fragrans*, a perennial more or less erect in growth, forming large branching tufts from 1½ ft. to 2 ft. in height, and producing terminal and axillary umbels of pure white flowers which emit a delicate vanilla-like perfume. As regards their

Culture and Propagation. *A. arenaria* and *A. umbellata* succeed best in rather poor light and dry soil; in richer and moister ground they are apt to grow weedy, and the flowers become less conspicuous. The position best suited to them is one fully exposed; either an open, flat, but well drained border or rockwork. *A. fragrans* succeeds best in friable or light soil, but being of larger and taller growth than the others, should not be grown on a rockery, but in a well-drained border. The propagation of all the



Purple Sand Verbena (*Abronia umbellata*).

species can only be effected by means of seed, which in favourable seasons may be obtained from *A. arenaria* and *A. umbellata*, but as *A. fragrans* does not ripen seed in this country, imported seeds of it must be procured.

W. G.

SEDUM MAXIMOWICZI.

THIS, one of the large-growing species of *Sedum*, bears large clusters of yellow flowers. It is a scarce plant in gardens, but well worthy of culture, as it flourishes in places where ordinary kinds of herbaceous plants will not thrive, such as dry exposed borders,

banks, rocky places, or in beds of poor soil. In such places the following will also succeed well, viz., *S. Selskianum*, *Middendorffianum*, *Aizoon*, all handsome kinds, bearing clusters of yellow blossoms, which are produced in early summer, and remain in perfection for several weeks. Of large-growing *Sedums* with flowers of a pink shade we might add *S. telephioides*, several forms of *Telephium*.



Sedum Maximowiczii.

rhodanthum, *Rhodiola*, and of course not omitting the showy and now popular *S. spectabile*, than which we know but few more suitable hardy flowers for late summer and autumn flowering.

W. G.

NOTES FROM CANNES.

Roses.—Hybrid Perpetual and Tea-scented Roses are still blooming profusely here. Roses of this kind growing in valleys and in moist situations do not lose their foliage all the year round; there is not sufficient frost and cold weather during winter to check their growth and cause them to lose their leaves, but they turn yellow, and fall as soon as the last season's buds burst and commence to grow. Where they are planted on slopes and elevated positions fully exposed to the sun, they can be allowed to rest during the two hottest months of the year, July and August. During these two months there is scarcely any rainfall, and unless they get artificially watered, the growths get so thoroughly ripened, that they lose their foliage and go to rest. About the middle or end of September they are pruned, but not so much as in England; then the soil is irrigated, and they receive good dressings of stable manure, treatment which quickly start the plants into active growth, and they produce abundance of bloom all through the winter in favourable situations facing the south. It is in winter and early spring that such Roses are required here and most appreciated. This climate is apparently everything that can be desired for out-of-door Rose cultivation. The soil is of a very heavy and tenacious character, but sufficiently mixed with sharp rough sand and pieces of porous stone to allow the roots to work easily amongst it, and Roses do well in it even without manure. The majority of Rose growers, however, make a hole round the stem of the tree, as soon as the drought commences, and fill it with manure to within 1½ in. of the top, the remaining portion being left for water. In this way they can give their Roses thorough good soakings of water and liquid manure until they require them to rest, which they can allow them to do, as a rule, whenever they wish, as in some seasons no rain falls for five months at a stretch. I have noticed Roses in some of the gardens here, especially Hybrid Perpetuals, the pruning of which has been neglected for a season or two, grown into immense straggling bushes with stems of extraordinary size; nevertheless, all these long growths seem to get thoroughly ripened under the hot sun and the excessive drought during the summer months, and after a few showers have fallen at the beginning of winter, these long growths produce blooms in great numbers. The blossoms which expand quite close to the wood are really good. These kinds of Roses can be grown to almost any size, as the wood rarely dies on account of its getting so thoroughly ripened every year.

Orange Trees which were not deprived of their flowers last spring for distilling purposes are now a very pretty sight. Most of

the trees where the blossoms were not gathered are bearing excellent crops. It is a custom with the peasantry, who own a great many Orange trees, to pick the blossoms and sell them for distilling. Trees thus treated; in a few years obtain a larger size and make a much stronger growth than trees that bear crops of fruit every season they do not become rank in growth as many other kinds of fruit trees would do if so treated; on the contrary, they produce abundance of flower. A great many of the earliest blossoms are likewise gathered, sent into large towns, and sold to the florists for bouquet making; these fetch good prices during the season when visitors are plentiful. In the villas and gardens where they are judiciously planted amongst other evergreen plants and shrubs, and in positions where they get the full benefit of the sun, they produce a splendid effect in autumn and early in winter after their fruit begins to change colour. I have seen trees here 14 ft. high and 10 ft. through bearing forty doz. fruit of excellent quality, and many trees of the size just named bear a greater number, but when they are overcropped nothing is gained, as the foliage becomes quite yellow, and the fruit is not so large or sweet; at the same time the trees lose their early growth, and are much later in coming into flower the following season. They annually get a good top dressing of rotten stable manure and liberal supplies of manure water where obtainable, which makes a material difference in the size and quality of the fruit. Trees that have been well attended to in this respect are easily distinguished.—R.

THE BEAR'S-FOOT HELLEBORE. (HELLEBORUS FETIDUS.)

At this season, when out-door gardens are almost flowerless, even plants passed by when other flowers are plentiful afford



The Bear's-foot Hellebore.

interest. The Fetid Hellebore is one of these, for though it cannot be called a showy flower, it has bold handsome evergreen foliage, thick and leathery enough to resist even the most intense cold. Though it is often found in the hardy flower border, it is apt in such a position to become soon shabby if it is not much sheltered. The best position for it is one similar

to that in which it grows naturally, viz., in hedgerows and thickets in dry soil, and many such places exist in almost every garden or pleasure ground where it would flourish admirably and be a source of interest, particularly in winter and spring.

Our woodcut shows the top portion of a flower-stem; the flowers themselves are green and tinged with purple at the tips. The plant grows about 2 ft. high, and if left undisturbed soon forms a low spreading bush. Though it possesses a disagreeable smell, as its specific name implies, it is not at all objectionable unless bruised.

W. G.

NOTES FROM CORNWALL.

Camellias.—I notice Mr. Cornhill recommending the Camellia as a wall plant. It may interest him to know that one of the finest and best managed Camellia walls in England is at Scorrier. Its length is 380 ft., and it is about 20 ft. high. We have Camellia trees in several gardens around here, notably at Penalvern, where there is the finest specimen in Cornwall; there are also half-a-dozen, magnificent plants at Pendrea, Gulval.

Magnolia conspicua is, I see, in full bud; this is very early. In a nursery here it has grown to the size of a large Apple tree. It will in all probability flower by the middle of March.

Petasites fragrans.—Allow me to inform "F. W. B." that this plant is extremely abundant in Cornwall, and that it is very frequently found in many parts of Devon; indeed, it has become so very much naturalised around Penzance, that some are doubtful as to whether it is a native, or only introduced. It is, indeed, a lovely mid-winter bloomer, and many people here have not been slow to utilise it. I know of one grower who sent a large basketful of it to Covent Garden, but I am not informed what price he got for it. Another uses it somewhat largely in wreaths, crosses, and bouquets, that are so much in vogue at Christmas. It has been in bloom from early in November, and is still yielding abundance of flowers.

Ferns.—I have read with much interest Mr. H. Bailey's remarks on hardy Ferns, but more particularly his observations on the two or three forms of *A. Capillus-veneris*. Could Mr. Bailey inform me where I could get a frond of each of the varieties *rotundatum* and *Footi* for a botanical collection? Probably I could send him in exchange a good frond of *A. Capillus-veneris cornubiense* referred to in THE GARDEN (p. 111). I am afraid we shall soon have very little left of the normal *A. Capillus-veneris*; owing to the activity of Fern hunters it is disappearing fast. I should not regret if one or two of them should tumble over some cliff in trying to get at it.

J. ROBERTS.

Lily Bed.—To make a small lasting bed for most Lilies the soil should be dug out 4 ft. deep and replaced with soil composed of two parts peat, one part loam, and one part sand. The best situation for a bed is in a shady sheltered part of the garden, but not too near trees with strong roots which would exhaust the soil. A few small evergreens such as *Skimmia japonica*, *Rhododendron Lowianum*, or *odoratum* improve the appearance of the bed and give shelter. Almost all Lilies are beautiful. The most beautiful which should grow in such a situation are *L. speciosum*, *rubrum*, and *album*, *L. Krameri*, and *L. auratum*. The old *L. umbellatum* is very fine and showy, and will grow in ordinary garden soil; *L. candidum simplex*, still one of the most beautiful of Lilies, likes a soil with more loam and less peat.—GEORGE F. WILSON, Heatherbank, Weybridge Heath.

Trillium grandiflorum.—This to do well must have shade, and I was surprised to see a correspondent stating some short time back that it should be grown in full sunshine. Not only does it need shade, but shelter, with plenty of depth of loose open soil and moisture, such as would be afforded in rich vegetable mould or bog, where water can drain away readily. We have several plants of it in positions of this kind, and I never saw better anywhere; they grow strongly, making fine masses, and flower with great freedom. If divided at all, or replanted, it should be done in the spring, just as they begin to move, a time when they will bear disturbing or separating better than at any other season.—S. D.

Munby's Violet.—I have just seen the notice of this Violet in THE GARDEN for January 15. By a curious omission, though other characteristics of the plant are excellently described, its chief speciality is not alluded to. The peculiarity of the *Viola Munbyana*, distinguishing it more than anything else from all other *Violas*, is that it bears both purple and yellow flowers from the same root. Sometimes, indeed, the flowers have been known to be only purple, and sometimes, as in my garden, only yellow; but the normal condition of the plant is, that it should bear both.—G. F. W. M.

THE CLOVE TREE.

THE beautiful evergreen tree which bears the Cloves of commerce grows to a height of 30 ft. or 40 ft., and has been likened to a gigantic Myrtle, to which, indeed, it is nearly related. The small flowers clustered together in branching cymes springing from the axils of the leaves are of a pinkish or reddish tint. The leaves are thick, dotted with minute oil glands, dark green and shining on the upper surface and paler beneath. The Clove Tree is said to be indigenous to the five small islands which constitute the Moluccas proper. In these islands it is now, however, no longer to be found, having been purposely destroyed by the Dutch (who at one time held the monopoly of the Clove supply) for the purpose of preventing the spread of the plant. The Clove is still cultivated in Amboyna as well as in Sumatra and Penang. It is also found in other parts of the Eastern Archipelago, Madagascar, Mauritius, in some of the West Indian Islands, and Zanzibar. The tree, which is grown for the production of Cloves is said to be a cultivated variety of lower stature and more aromatic than the wild form. The Cloves of commerce are the flower-buds of this tree,



Flowers of the Clove Tree. (*Eugenia caryophyllata*)

which when young are nearly white, becoming afterwards green and finally red, at which stage they must be gathered, for if left beyond this period the buds would open and they would then be worthless for commercial purposes. They are either gathered by hand or the tree is beaten with long Bamboos, cloths being spread on the ground beneath to receive the Cloves as they fall. After gathering the buds are simply dried in the sun, when they change to the dark brown colour so familiar to us all. The average annual yield of a good Clove tree is about 4½ lb.; some trees, however, produce double that quantity. Under the name of Mother Cloves the dried fruits of the Clove tree are sometimes seen in commerce; they are dark brown, of a shrivelled, oval shape, about ¾ in. long. They contain much less of the aromatic oil than the Clove bud, and therefore are comparatively of little value.

J. R. J.

Salvia verticillata.—The mistake to which Mr. Harpur Crewe has obligingly drawn attention is a very evident one. The *Salvia* should have been *involucrata*, a native of Mexico, and a grand bloomer in the Riviera early in the year. Its flowers are rose, the red-nered bracts being very conspicuous. The other I have flowered for some years, and the blooms, as Mr. Crewe remarks, are small and I would add inconspicuous.—P. INCHEALD, *Hovingham, York*.

NOTES FROM GLEN EYRE.

BEING in Southampton a few days since, I thought I would look in at Glen Eyre, Mrs. Eyre Crabbe's charming residence, to see how the out-door Camellias there had stood the severe frost to which they had been subjected. I must say I had no misgivings, for the Camellia is really one of the hardiest of shrubs, and I found that, although there is growing in all sorts of places and positions a large number of them at Glen Eyre, not one exhibited any worse effects from the weather than might be seen in the case of the Laurel or Rhododendron. Here and there a browned leaf, stained more by the snow and wind probably than by frost, and just now and then an early bloom-bud was destroyed, but these were trivialities that would not have been noticed in the case of other shrubs, and are only observed in that of the Camellias, because they came under special notice. Probably the soil at Glen Eyre—poor, peaty, and wanting stimulus—is naturally suitable for the Camellia, but it is only where the plants have long become established that they show that entire robustness and abundant blooming capacity that marks the old plants. Those planted out ten years and more are quite luxuriant, the leafage abundant and glossy, and the points of the shoots covered with buds. Those more recently planted have not yet apparently found that full amount of nutriment which they evidently need, and I infer that the Camellia would prefer more stimulus at the roots if it were given. Of course they do not grow like Laurels; no one expects that; but owing to their abundant blooming there is so much cutting of flowers that further pruning is needless. I note that wherever the plants had the benefit of shade and some shelter from cold winds (for the grounds face to the east) that they seemed the most robust. Probably the shelter from burning sunshine in summer is of the greatest value. For out-door planting it is well to select plants not stunted or pot-bound; on the contrary, they should be turned out whilst young and vigorous; then they have a good chance to live. If the soil is naturally stiff and lacking fibre, it would be well, before planting, to work into each spit a barrowful of peat and a few shovelfuls of well rotted manure.

Rhododendrons will make a grand show at Glen Eyre in spring, and this year the bushes are covered with buds. So luxuriantly do Rhododendrons grow in the sandy loam, that every few years the plants need thinning. In making, a few years ago, a new carriage way several hundred yards in length, Mrs. Crabbe wisely avoided the common mistake of planting on either side only stiff lines of formal trees; on the contrary, she intermixed them with groups of Rhododendrons, which, running out over the Grass, will in time produce a fine effect. In the conservatory *Bignonia velutina* is producing long racemes of orange and scarlet blooms hanging from the roof. This has been in flower for four months—pretty conclusive evidence of its usefulness in winter. As the temperature of the conservatory is temperate, this *Bignonia* will doubtless succeed in an ordinary greenhouse. In an adjoining lean-to glass corridor that has no artificial heat supplied to it but what it gets from the apartments to which it leads, there are growing quite luxuriantly the variegated *Cobæa*, *Jasminum grandiflorum* and *azoricum*, *Kennedya rubicunda*, *Chorozema cordatum splendens*, and *Hardenbergia macrophylla* and *monophylla*, both just coming into bloom. All these are growing freely, though in restricted root space and in a comparatively cool temperature. Amidst the hardy Heaths, several of which are in flower outside, there peep up *Cyclamen coum* and *Atkinsi*, and seedlings from these varieties, charming companions to the early Snowdrop, which they seem to rival if not excel in precocity. Glen Eyre has always been famous for double Chinese Primroses. One of the best known in Messrs. Henderson's collection is the flaked Mrs. Eyre Crabbe, raised here, as were also several other good varieties. In a span-roofed house specially suited to their growth are perhaps 200 good plants of these Primroses, all in fine flower and all well grown. Most of these were raised from 10 to 15 years since when a good deal of attention was given to the hybridisation of the single flower to secure a strain of seed that gave double flowers, but it was found in time that the later seedlings were chiefly reproductions of the old ones, and no further stimulus to raise new kinds was offered. The stock is not propagated by means of cuttings, but simply by division, each portion taken off having some roots attached to it; indeed, some of the choicer singles are propagated in the same way, and I observed in the house in fine bloom a plant of the beautiful carmine flake of which Mrs. Eyre Crabbe is the double-flowered form. This is not to be confounded with the purple flaked kind, which is more common. Of other double kinds there are many pure white, and others purple flaked, rose, magenta, purple, and a rich rosy-purple named Glen Eyre that has not gone into commerce.

An experiment in fruit tree planting carried out here two years since is interesting, because it shows what others might safely do if

bold enough. Owing to some considerable alterations being made in the place it became necessary to remove a large number of Apple and Pear trees, about 100 in all, and one half of them, perhaps, 20 years old. In doing this it was found that transplanting the trees with balls of earth attached to them was out of the question; the soil was too loose to admit of that being done, and there was no other course but to grub out the roots carefully and plant the trees as early as possible. The new orchard is on an elevated site, and the spots selected for the trees had to be hurriedly trenched before planting, but all were finally removed, and now not one is lost; all have lived, and during the past season produced a good crop of fruit. Now they are full of plump fruit spurs, and doubtless will carry another large crop this season. As the sub-soil is gravelly it might have been expected that the newly-planted trees would have suffered under the summer heat, but that does not appear to have been the case.

A. D.

CHRISTMAS ROSES FOR CUT BLOOMS.

Few flowers surpass in purity those of this hardy inmate of our gardens, and there is scarcely a form of floral decoration in which they are not appropriate. Coming in, as they do, at a time when there is but little in the way of bloom to cheer us in the open air, the Christmas Rose is very welcome, and when we take into consideration that it may be made to yield us a profusion of beautiful flowers as chaste as any produced by means of artificial warmth and the aid of a glass roof during the dreary winter months, it is evident that we need not grudge any reasonable pains to promote its welfare and secure a supply of flowers for cutting. The blossoms of the Christmas Rose vary considerably according to the more or less favourable conditions accorded to the plants and the shelter enjoyed by them when expanding their blooms. The latter point is of considerable importance, for although the Christmas Rose is perfectly hardy, throwing up and perfecting its flowers at a time when the influence of the sun is at its lowest ebb, it is all the same for that seriously affected by vicissitudes of climate, and loves to find itself sheltered from cutting winds, heavy rains, and hard frosts. Heavy rains perhaps more than anything are feared by this lovely plant, for they dim that spotless purity of the flowers which constitutes their chief beauty, thus rendering them of but little avail for cutting. Protection, however, does for the Christmas Rose what it effects for many hardy flowers: it promotes a more free development of the blooms, and causes them to come larger and finer in every way. The great point, therefore, is to plant with a view to affording an efficient shelter whilst the blooms are expanding. One way of doing this is to pot strong plants in the autumn and place them in a light well-ventilated structure, treating them as one might do a Geranium or any such plant. By this method bloom is secured at Christmas; whereas it more often happens than not that the first flowers do not expand in the open air until several weeks after that time. Plants thus treated are also very acceptable for conservatory and room decoration, the large white flowers, with their bunches of sulphur-coloured stamens contrasting beautifully with the fresh, green, elegantly-cut foliage. Such plants need not necessarily be turned out of their pots when their flowering season is past, for if plunged in some open situation and well watered with liquid manure in the summer they will yield a fair amount of bloom for some years. They may also be shifted each spring until they come into pots too large to well admit of their employment either in the greenhouse or in the dwelling, when they may be either cut up and fresh potted, or be planted out entire in appropriate situations. It is, I think, a well acknowledged fact that the Christmas Rose is never too plentiful in gardens generally, and that although the blooms are so highly and justly valued for winter decoration, as a rule but little effort is made to secure a plentiful supply of them when needed. Some years ago the culture of the Christmas Rose did not appear to be too well understood; at any rate it was always dear in trade establishments, prices for good plants ranging at 24s. per doz., a prohibitive price to many; now the plant is much cheaper, and may be bought at very reasonable rates by the dozen or hundred. The comparative scarcity of this valuable hardy flower at that time was, I think, due to the fact that but few were well acquainted with the best, quickest, and most certain method of

set about it, as many have found to their cost. One error that some commit is in cutting up the crowns in the autumn, choosing that time, I suppose, because so many hardy plants are then easily propagated in that manner and at that time. When the natural soil is light and porous the divided stools may not suffer, but in the case of retentive soils the pieces are apt to decay before the cut portions can heal or fresh fibres be produced in quantity sufficient to bring about a free circulation of sap before the soil comes into an over-wet condition. Spring is the time when Nature's influence upon her children makes itself felt, when wounds heal quickly, and the increasing warmth of the soil exercises a stimulating effect upon root life, to take up and divide each crown into as many pieces as may contain the germ of a new separate existence within them. Not only is propagation in the spring more certain than at the fall of the year, but the operator may at that season take greater liberties with each stool that passes through his hands; may make a more free use of the knife, little dreading any ill effects from what would at any other time of year be extremely hazardous. Taking all things into consideration, I should counsel that the beginning of the month of April be chosen for the cutting up of the crowns, as the formation of young growths is begun, eyes hitherto dormant and unobservable declare themselves, acting as a certain and convenient guide to the operator, who is thereby enabled to ply the knife with ease, readiness, and confidence. It is astonishing how small a piece will form itself into a new plant when the operation of cutting it is performed at a time when Nature's healing, revivifying, and stimulating powers are coming into free play again, and with what vigour young plants will start into growth when every care has been taken to insure to them a happy and comfortable existence. It should always be remembered that plants, like ourselves, have feeling, and that the loss of vitality, consequent on amputation, should not be unnecessarily aggravated by needless torture in the way of exposure to sun or drying winds. Let the stools be carefully taken up, and if the weather is at all drying be carried at once to the potting shed before the roots can in the least feel the effects of the drying atmosphere. Then, with a very sharp knife, cut each stool into as many pieces as it may be considered safe to do, not allowing them to lay about, but planting them at once in well-prepared soil. By no means submit them to the indignity of hacking the crowns with a spade, such a practice being barbarous and reprehensible in the extreme, and to be avoided by the true craftsman.

Raising Christmas Roses from Seed is not commonly practised—in the first place because some time must elapse before the young plants reach the blooming stage, but principally, I think, through the prevalent idea that there is great difficulty in getting the seed to germinate satisfactorily. It has been often remarked that when the seed, on escaping from the capsule, finds itself in circumstances favourable to germination, that it then comes up freely enough and where established plants have bloomed abundantly, and the surface-soil is of a sufficiently open nature to allow of the seeds burying themselves to a sufficient depth, large numbers of young plants are often to be found. This is proof sufficient that the seed when properly treated will come up with freedom, and there is no reason why what Nature does so well man should fail to accomplish. The Christmas Rose seed, like that of the Cyclamen, the tuberous-rooted Tropæolums, and some other plants, appears to need instant consignment to the soil the moment that maturity is accomplished, and the chances of success in inducing free germination are in proportion to the time that the seed is allowed to remain exposed to atmospheric influences. When Nature takes the matter in hand she at once deposits the germ of future life on a cool moist bed, and the fact of the capsules bursting and shedding the seed when still green shows how anxious she is to guard it against the hardening influence of sun and wind. An analogous instance may be found in the Cyclamen; for although Nature in this case does not go to work in the same way, she has the same end in view, for the flower-stalk as soon as the bloom is fairly set commences to arch downwards, and exercises sufficient pressure on the pod to force it into the soil, so that the seed never is when fully ripe exposed to atmospheric fluctuations. Let us, therefore, accept the lesson thus taught us, and sow our Christmas Rose seed as soon as the capsules show signs of bursting. Those who may wait until the pods attain that brown tinge, which is in a general way indicative of perfect maturity, must do without seed, for it will be scattered over the soil, in

Propagation, about which it may be as well to say a few words, for although there is nothing difficult in working up a stock of Christmas Roses, yet there is a right and a wrong way to

which case no small difficulty is experienced in finding it. There is one peculiarity that the Christmas Rose seeds, in common with others of a like hard-coated nature, possesses, and which it may be well to allude to before proceeding further, as it serves to account in a great measure for the tardy and incomplete manner in which this plant, in a general way, reproduces itself from seed. If at any time after the seed is sown the soil gets only partially dry, the seeds immediately return to their former hard state, from which it appears almost impossible to move them, for even with all the care in the world they will lie for years before coming up. Then, again, any excess of moisture, just when germination is on the point of taking place will cause the seeds to rot away in a few days, leaving nothing but the hard, black shucks behind them. These facts will afford to the intelligent grower all the information needful to ensure success, as it will be plainly perceived that from the time the seed is committed to the soil this latter must be preserved in one unvarying state of moisture, the approach to an extreme either way being fraught with great danger. The best way, or at any rate one that I have found to answer well in getting up seeds of this description, is to sow in pans or pots in suitable compost, and plunge the same in a cold frame where the whole body of soil is unaffected by atmospheric fluctuations. Before sowing the soil in the pots should be well moistened, not giving enough water to render it close, but ensuring every particle of it being filled with moisture. Let the compost be light and sweet, such as leaf mould two parts and loam one part, with a goodly proportion of silver sand. Give good drainage, cover the crocks with a little fibrous material, and finish off with a pinch of soot to keep worms at bay. Plunge the pots quite to the rims in a frame, if possible in a north aspect, cover the surface soil somewhat thickly with Moss, shut up tightly, and shade with a mat. This treatment ensures the soil remaining in an equably moist state, obviates the necessity for watering, thus creating the exact conditions necessary to perfect germination. In a general way the seed will lay some months before it commences to swell, and will push into growth early in spring, about the time when the old stools begin to show signs of active life again. From time to time the pots must be examined, and should the surface soil show signs of drying gently sprinkle it and damp the Moss, the preservation of which, however, in a moist condition is almost all that is needed to maintain the soil at the requisite standard of moisture. Some make a practice of sowing in heat in spring, but the attempt to raise Christmas Roses in this manner is not often attended with a fair measure of success.

Planting and Preparing the Soil.—Whether the object is merely to well stock the pleasure grounds with Christmas Roses, planting them here and there as fancy may direct, or whether a large supply of flowers for cutting is the main object in working up a stock of this hardy flower, the young plants—no matter if they be seedlings or divided crowns—should undergo at least one year of careful culture before being placed in their permanent quarters. In the case of seedlings it is as well to allow them to grow undisturbed for one season in the pans, although should they come up thickly they may, when large enough to handle, be pricked out in free rich soil in a frame, just shielding them against heavy rains and very hot sun. The following year they may be set out in a well worked piece of ground, which should have undergone a careful and thorough course of preparation. The Christmas Rose, when in the hey-day of its strength, likes strong food, and plenty of it, being quite at home in loams which verge upon stiff clay. It is quite able to thrust its main feeders into the most tenacious of soils, and makes, when well established, a strong growth in them, especially when a liberal top-dressing of manure has been administered. In its younger and more feeble stages of growth, however, it, like most other things, requires the aid of some more fibre-producing material, so that the grower will find that the results obtained in the first year or two of growth will be in proportion to the care exercised to render the natural staple at once rich, free, and of a nature to exercise a preservative, yet stimulating, effect upon the tender rootlets.

Having said this much I need scarcely add that a naturally free, light soil will merely need the plentiful addition of manure in a condition best suited for easy assimilation, but that heavy loams and clayey soils must receive an addition of some light material, and that every effort should be made before planting to bring the same into a free, friable state. The best way to plant is to strike out a 4-ft. bed, and plant in rows running the whole length of it,

as then the hoe may be freely applied, or hand-weeding may be easily practised. A better opportunity is also afforded of giving to the young plants those little attentions in the way of watering, &c., which they are often found to need. Anywhere from the middle of March to the beginning of April is a good time for planting, as the young roots then quickly lay hold of the soil, and, if assisted in dry weather by occasional waterings and well mulched with rotten manure, will make a good growth that summer. The next year, if all has gone well, the plants may be placed in their permanent quarters, and as the object of the present paper is to direct attention to the best means of getting a good supply of cut bloom, I would counsel that a piece of ground be marked off, in width equal to the length, of any sashes that may be at service in the winter, and the plants set out at proper distances thereon, and as they are now to remain for an indefinite period in the same spot, they should be allowed good breathing space, for there is nothing to be gained by crowding. The quality and quantity of the flowers will be in relative proportion to the strength of the crowns, and as these latter derive their vigour and substance from the foliage, every advantage of light and air should be accorded it. The Christmas Rose does not yield us the full measure of its beauty, and does not impress us with its value until it has become well established. Then it throws up yearly a large amount of its gloriously chaste flowers, and becomes a thing of beauty and priceless value to those who have to cater for a floral display in a dwelling in the dark winter days.

Protecting the Blooms.—This is really such a simple matter, that there is but little need to give directions concerning it. If the planting has been carried out as above indicated, a single board on each side of the bed fixed in place by stout stakes driven down on each side of it will suffice to lay the sashes on. The glass shelter should be put on by the middle of October, and the expansion of the blooms will be accelerated by covering the glass with mats, or a good thickness of litter in frosty weather. The term Christmas Rose is apt to be something of a misnomer, as it is often quite the middle of February before the crop of bloom is ready for cutting when the plants have been fully exposed. What is required are good flowers in perfect condition by Christmas, and plenty of them. Whether they are required for the trade, grown for commercial purposes, or by the private grower as an auxiliary to choice productions under glass, they will in all cases be found of infinite value, and will be found to amply repay all care and trouble involved in their production.

J. CORNHILL.

Byfleet.

THE ROSE GARDEN.

ROSE CUTTINGS.

POSSIBLY "W. G. M.'s" courteous note (see p. 143) was written before the late severe frosts, or his Rose cuttings were covered with snow or he could hardly have written so good an account of them. If they are really and still safe and promising, I would advise dividing them into two equal parts; take up one half and pot, and leave the others where they are. After potting merely sprinkle over head rather than water, and place the Roses in a bottom heat of 65° and an atmospheric temperature of 55° or 60°. The first pots can hardly be too small. If properly callused the roots will spring forth at once, and the Rose cuttings may be ready for a shift into the next sized pots in three weeks or so. Every properly callused cutting sound at potting roots and grows on. Of course, as they advance more water and air are given and the plants soon grow into bulk.

In the most successful out-of-door strikes a great many cuttings die, either before callusing or afterwards. Nearly all that die afterwards may certainly be saved by potting up now. Hence were the cuttings mine, I should pot up the whole; but as they are not, I give the more prudent advice to those who have not thus forced callused cuttings into rooted plants to pot up half. Next year doubtless "W. G. M." will pot up all as soon as callused, or, perhaps which is still safer and better, place them in pots at first, as I have recommended. It is quite true that the majority of bought dwarf Roses are worked plants. Rose shoots go rather further for scions than for cuttings. And besides, a great many have failed in the trade and out in the matter of Rose cuttings. I heard a humorous account of a failure to the tune of 3000 cuttings from one of the best rosarians in the country a few days ago. Enter a new foreman who knows everything about Roses, and among others how to strike them in bulk and to any extent. He

was given *carte blanche*, partly as a test and with also a faint hope, that should his secret succeed it must needs become profitable. And so 3,000 were put in pots and plunged into a bottom heat of 75° to 80°, and exposed to a temperature of 65° to 70°. The cuttings broke their buds with a rush. Under such conditions you might almost hear them grow! The foreman was jubilant; his Rose cuttings became the lion of the place. But within less than a month of the time of insertion the whole of the cuttings were *hors de combat*. Roses steadily refuse to root in that way. Slow at first; moderately fast at the finish; in small pots, with very little water until roots are actually made ready to drink it up, such seem the simple conditions of success in the converting of Rose cuttings into capital plants. Our plants are now laying hold of the soil since potting, and look remarkably well. At last the weather has broken, and we have our stocks to hand; one-half Brier cuttings, the other Manettis; divide them so as to make two and even three stocks of most of them. Place them in tubs in leaf mould in a temperature of 55° to 60°, there to remain for a week or two more before grafting. D. T. FISH.

The Banksian Rose as a Stock.—I have seen the fine growth of *Maréchal Niel* on the house at Gunton, alluded to in Mr. Allan's paragraph on this subject last week, and can testify to the fine healthy growth of the Roses in question; but Mr. Allan's note reminds me of more than this—it does, in fact, of an article that I once read of Mons. E. André's, describing a tour of his in the pleasant Rose gardens of the south of France, where Roses grow in hedges abundantly, and where they show in spring and early summer an abundance and luxuriance of growth which we never see here. The curious thing to me is Mons. André's statement that the luxuriance of the Roses depended on two things: first, the climate, which is very fine; but no less, as he thought, to the use of the Banksian Rose as stocks. It would be very interesting to find out how far this would be true in our own climate, and if we could get a really greater and healthier vigour into our Roses by the use of this free growing stock. He also mentioned *Rosa indica major* as another excellent stock used in the same region.—V.

Maréchal Niel Short-lived.—“Peregrine” (p. 145) is right; I said little about how long this fine Rose will live on the Dog Rose, for the all-sufficient reason that I do not know. Most of those I have either worked or had experience of have not lived long. This way of putting it, however, is hardly correct. The plants can scarcely be said to die, they only cease to live to any good purpose; as to disparity of growth being the chief cause of the sudden mortality of the *Maréchal Niel*, that can hardly be the case, for surely, if any Roses were likely to keep pace with it, it was the pink and the common *Gloire de Dijon*; but the *Maréchal Niel* is no longer-lived on these than on other less free stocks. Again, on its own roots it is even more capricious, sulking and refusing to grow for one or more years, and at times throwing up shoots like fishing-rods 12 ft. in length, flowering gloriously, and as suddenly falling into a state of decrepitude and death. Other plants, treated exactly the same, go on growing and flowering fairly well for years, but it is generally what may be called the meteors among the *Maréchal Nels* that are thus crowned with sudden glory and as quickly sink into oblivion, and neither the cause nor the cure of these diverse phenomena have yet been discovered by rosarians. Our old Roses of the *Maréchal Niel* alike out of doors or under glass, are either dead or the mere ghosts of their former selves; the gouty stems of the *Maréchal* described by me are widely different in their appearance and results from the super-swelling of the scion over the stock so common among Peaches and other trees.—D. T. FISH.

Tea Roses for Early Forcing.—Where Roses are required in bloom very early, say during January and February—more especially for producing buds for cutting in a half-expanded state for button-hole and other bouquets—Tea Roses are best suited for the purpose, not only on account of their moderate size, beauty, and delicate perfume, but also because of the ease with which they can be forced into bloom at an early date, thereby effecting a saving in the way of fire-heat, and with benefit to the stock of Roses generally. Tea Roses, too, do not appear to require such a decided season of rest as the Hybrid Perpetuals; in fact, it is difficult to get them to remain quiescent unless the temperature is so low as to almost endanger their safety. We have some large Tea Roses beautifully in bloom at the present time that were trained up to wires on the back wall of a cool house until they attained large proportions, and when they ceased growth in the autumn they were taken down, pruned slightly, top-dressed, tied up to stakes, and placed in an early Vinery, where a slightly progressive temperature was maintained. Here they soon developed some beautiful flower-buds, when they were transferred to a cool house again, where the blooms remain a long time in perfection at this time of year. After the flowers are

cut the plants will be sheltered in the cool orchard house until they can be ripened off in autumn out-of-doors. They will continue to furnish some buds for cutting nearly all the year round, but at no period are they more prized than during the first two months of the year.—J. GROOM.

Roses and the Frost.—I thank “Peregrine” for his courtesy in not naming me as the writer of the paragraph criticised in *THE GARDEN* (p. 145). As a rule, no doubt it is impossible to make up the list of losses among Roses till the spring, but that does not hinder any one from seeing many killed at once, as they were by the dreadful “wind frost” referred to. Had “Peregrine” called here the day after, I could have shown him scores of Roses about the sudden death of which by wind frost he could have had no doubt whatever.—F.

THE GARDEN FLORA.

PLATE CCLXXII.—THE WHITE ALDERS.

(CLETHRA.)

THE North American *Clethras* form a group of free flowering deciduous shrubs, which during the autumn stand second to none as regards the beauty of their blossoms, which are for the most part of a pure white. Of *C. Michauxi*, one of the kinds here illustrated, there are specimens at Kew, but I cannot find the name elsewhere, not even in trade lists. It differs from the others principally in the flower-buds and partly expanded blossoms being of a pale pink colour instead of a greenish hue. *C. tomentosa* is much the same in habit as the preceding, but the flower-buds are greenish, and the undersides of the leaves, which are glabrous in *C. Michauxi*, are in *C. tomentosa* covered with a white downy substance. Of the rest *C. alnifolia* differs from *C. tomentosa* only in foliage; in fact, some authorities look upon *tomentosa* as but a variety of *C. alnifolia*. *C. paniculata* is distinguished by bearing its flowers in panicles, while *C. acuminata* is of rather stronger growth, and is said in its native country to attain the dimensions of a small tree; here, however, it does not differ greatly from the others.

Although introduced as long ago as the last century, these charming shrubs are not often met with; another proof (if proof be wanted) that in our search for novelties many beautiful things already in the country are overlooked. The French have begun of late years to recognise the value of these plants, and in many places they are now grown largely for the sake of their flowers, which are very useful for various purposes. Another species which differs greatly from those here figured is *C. arborea*, a handsome greenhouse evergreen shrub or small tree which bears spikes of deliciously scented pure white flowers, reminding one of those of the *Lily of the Valley*. It is a native of Madeira, from which it was introduced in 1784. This species, although strictly speaking a greenhouse plant, yet manages often to survive the winter in favoured spots in our southern counties.

Culture and Position.—Being natives of the swamps of North America, the *Clethras*, like most *Ericaceæ*, the Order to which they belong, succeed best in a cool and moist situation, such as that in which the hardy *Azalea* delight; in short, what is usually known as the American garden. ALPHA.

[Our plate was prepared from specimens kindly sent us by Mr. Stevens, of Byfleet.]

Paraffined Seeds.—A correspondent asks if paraffin applied to small seeds before sowing injures them. My experience may be of use, perhaps, on this point. Here we have great numbers of small birds of various kinds always on the look out for seeds when sown. In order to prevent their taking those of the Cabbage tribe, Radishes, &c., I first put the seed into an Australian meat tin, then drop paraffin on it in proportion to the quantity of seed, say a teaspoonful to 4 oz. I then shake up the seed well, so as to get every one well coated with it; then a pinch of red lead; the tin is again well shaken, and every seed will be found to be red, but I do not think it is essential to use red lead. I have found anything in the form of powder to answer equally well, such as dry, fine wood ashes or soot. I find that the seeds germinate freely, and that they are safe from birds until this has taken place, but no longer. Some means must then be used to prevent them from pulling the young plants out of the ground. My practice is to keep them dusted with wood ashes or soot, mixed with any dust which may come to hand, till they are developed sufficiently to be out of danger. The birds do not seem to relish dirty seed



WHITE ALDERS.
1. *CLETHRA ALNIFOLIA*. 2. *C. MICHAXII*

leaves, and the ashes act as a stimulant to the young plants when washed in by rain or otherwise.—R. LLOYD.

NEW BEGONIA (B. SOCOTRANA).

THE annexed engraving represents a new species of *Begonia*, recently introduced to Kew from the island of Socotra, in the Indian Ocean, by Dr. I. B. Balfour. It is a pretty plant, and very distinct as regards foliage from any other cultivated kind we know, being peltate, or of round outline with the stalk attached to the centre of the under surface. The flowers are clear rosy-pink, the pollen-bearing flowers having four, the seed-bearing ones six petals. Though the flowers represented in the woodcut were the natural size of those on the Kew plant, we have reason to think that they are very small compared with those the plants will eventually produce when under the influence of more favourable weather and skilful culture, and the foliage likewise will be much enlarged. The small illustration shows the habit of growth of the species, and it may be seen how distinct it is from most others. And it is this character, together with the robust growth, distinct foliage, and beautiful colour of the flowers, that will render it available

by the wind in a trench. If the valley be subdivided by a mountain spur into two others, the hail cloud also divides and the two secondary valleys are ravaged in their turn, at least to the extent in which they are within the zone hail. Valleys lying across this zone have also an influence, though less marked. When the clouds come to pass over them they show a tendency to descend and to spread out on the two sides of the zone, so that the zone is broader over valleys than over plateaux, and the ravages are often greater.

GARDEN CATALOGUES.

THIS is the season when catalogues come forth in greater numbers than ever, and when they are made most gorgeous by coloured wrappers and illustrations. The issue of garden catalogues, now a very old institution, is welcome to all who care for their gardens, but it is questionable whether the increase in showiness and in size which we have witnessed of late years is an unmixed good. We have small objection, except on the score of bulk, to increasing the illustrations of the catalogue, because, when faithful, they may assist in the spread of knowledge, and may assist the buyer; but unhappily certain houses of late years seem to vie with each other in getting up sketches which are sometimes exaggerated in the effort to make the most of the subject under notice. The end of this is that a gaudy and very often large book is produced, which is not nearly so rich in information as it might be if space and means had not been wasted in these huge cuts and coloured plates. One sometimes wishes for a catalogue, with no illustrations, that would simply enumerate the sterling kinds, omitting no novelties of any note, giving each subject its true name as far as it was known. No doubt most of the firms that issue these catalogues are actuated by honourable motives; but the desire to "protect themselves" leads to a species of competition which ends in a sad way for truth in drawing. They



A new *Begonia* (*B. socotrana*); flowers natural size.

for hybridising purposes, and consequently the forerunner of a new race of garden hybrids. The stock of plants, we believe, will be shortly distributed by Messrs. J. Veitch & Sons, Chelsea.—W. G.

On Hail and the Configuration of the Ground.—From a study of phenomena of thunderstorms in the Gironde (France), M. Lespiault comes to the conclusion that valleys are more struck by hail than hills or tableland. It seems that a certain depth below the clouds is necessary for the formation or the fall of hail to occur without obstacle. Further, the directions of the valleys traversed have a marked influence on the direction of the clouds, though they only cause a momentary deflection, and the clouds, after following them a certain time, are carried on in the general direction of the vortical movement. For example, if a valley be in the axis of the zone of hail, or a little inclined to that axis, the hail clouds seem to be carried along that valley, as dead leaves are carried along



Begonia socotrana, showing habit of growth.

do not recognise the fact that things are better drawn as they are, and that all attempts to "improve Nature," by making the things they wish drawn rounder or fuller, are deplorable. The effect is bad in all ways, because it is quite impossible for artists to draw without blundering what they do not see. It is extremely difficult to get, even in these simple matters, a drawing of a flower or a fruit well done, or an artist who can produce a good and artistic drawing. That being so, one can pretty well judge of the effect when an artist of ordinary skill is instructed to add to the size or the furnishing of the subject before him! He is working in the dark, and must go wrong. An artist of any spirit or real ability would not do it—would not draw from the imagination. This state of things should be resisted by the buyer as much as possible, and no mercy should be shown to any exaggerations or distortions for any purpose in gardening. In cases where the artist is dealing with novelties, the grower should present him with a well-grown specimen, and demand absolute truth in drawing or colouring, and, as much as possible, life-size drawings. It is better to look back at the small drawing of an early specimen of a novelty, which in its full development grows far more than was expected, than to look back, as many do, to great Cauliflower masses of colour, or black and white distortions or exaggerations. Some less pleasant arts may require the aid of the unconscientious artist, so to say, but not the beautiful art of gardening, in which the nearer we can get to Nature the more grateful we should be. Imagine the cruelty of making some poor fellow put four flowers where he finds but three, or blow out a few poor little pips

into an immense head of bloom, only growing in the imagination. The Cucumber is one of the worst-treated things of late, many houses of it being so engraved that the contents look more like a collection of bolsters than a Cucumber house. This is not so much a question of effect as a question of taste, because certain varieties of Cucumber, if the seed be allowed to ripen, and there is a good crop grown, will make a very large show. But, of course, we all eat Cucumbers when they are not overgrown and full of seed; nobody pretends to admire a huge Cucumber, looked at from the point of view of eating; we seek, on the contrary, small and tender Cucumbers—therefore all this exposition of the big Cucumber is wasted work. On the other hand, there may be objects which, from their not being generally known to the public, would be better for a really faithful illustration. We are not without hope that a tendency to honest work will eventually prevail in this direction.

A greater evil still is that of needlessly burdening our lists of names with new and not needed synonyms. Every new and enterprising house that is started in the seed trade feels bound, in self-protection no doubt, to call well-known vegetables after itself. The race of Brussels Sprouts are well known, and as fully developed as anybody wants them; any change in the direction of bulk really destroys the original quality and character of the Brussels Sprout by giving one a small Cabbage heart, instead of the neat little button which is the true Sprout. Abroad, for example, where they are particular about these things, the small rosette of the Brussels Sprout is the only thing cared about. But here we notice that some of the seed houses feel bound to have their own special variety called after themselves. In the majority of cases this really means that a new name and a needless one is given to a vegetable already thoroughly well known. It would be difficult to indicate a more mischievous custom than this, which obtains in England to an extent unknown in any other part of the world. It is painful to read column after column of *So-and-so's* this or *So-and-so's* that, which the experienced know can only, at the very best, be a good strain of an already well-known kind. What we may come to in the end if every rising seed house feels bound to have its own variety of every vegetable in use, goodness knows. Imagine, too, the mere waste of force on the part of certain houses, who, for their own sakes, buy and grow to prove all things with a new name! If we had any legislative or other means of controlling this it would be a boon to the cultivator, and in the end of great advantage to the seed trade itself. If the leading houses would only agree among themselves to a code of nomenclature for all our well-known, well-tried, and approved vegetables, it would lead to much good, and in some measure get over the difficulty. When a firm possesses a superior vegetable, or sends it out for some time, it seems fair that the plants should bear its name; but the thing is now such an evil that a house starting last year may print a catalogue this year, with, perhaps, several score of things named after itself. There is plenty of scope for all healthy effort without adding a single name to the stock of good vegetables we already have.

Another very objectionable feature is the offering of novelties in races of vegetables where no real improvement has taken place, a notable instance being the Melon. Anyone with the slightest knowledge of Melons knows that there is no difference whatever in them between this day twenty years or this day forty years; the alterations are in the names only. The Green-flesh Melon, shown thirty years ago, is quite as good in quality as one of those Melons with a fine name raised last year, and sent out this. In other things one may get useful breaks, or even a certain amount of novelty, but certainly we do not in the Melon. Some things vary indefinitely, and occasionally a really improved form may be found, as, for example, in the Tomato; but the Tomato itself is a case where injurious multiplication of names is evident enough. Beyond a certain point there seems little change in the Tomato, and what there is is not always in the right direction, judging from some enormous specimens with great cores and scars outside. The history of new Melons is this. Some one raises a particularly fine fruit of a well-known kind, or the cultivated kinds, being very often of mixed varieties. He takes it to the local flower show, where it is admired, and forthwith resolves to send it out as a new kind; it is christened accordingly and the seed sold to some enterprising seedsman, and it comes out in full bloom next spring as *Hopkin's Conqueror*, or *Victory*, as the case may be, the progeny in no way differing from any other seedling Green-fleshed Melons. By the way, they are all seedlings.—*Field*.

Price of Flowers in New York.—Mr. Hendrick's account of the demand for flowers and their cost during the present winter affords gratifying evidence of the estimation in which they are held in America. It has hitherto generally been supposed that nowhere except in England could people be found who would give extra-

gant prices for an article of pure luxury, and that of so perishable a character as flowers, for although on the Continent, especially in France, flowers are so generally esteemed as to be looked upon as all but indispensable, still they are in a great measure confined to common homely kinds, procurable during the greater part of the year at a trifling expenditure. Those who notice the bouquets in the Grand Row, Covent Garden, or the West End shops during the winter season, or have had an opportunity of seeing those that are prepared for wedding orders at from a guinea to five guineas each, frequently look upon such as representing the highest figures paid for flowers, yet this is far from being the case, for it is no uncommon occurrence when examples are required for particular occasions, when flowers are more than usually scarce, to see eight or ten guineas paid for a bouquet with its trimming of real lace. About the close of the last year and the first weeks of the present one of the London floral establishments was making from five shillings to seven-and-sixpence each for all the Gardenias they could produce, and at that price could have disposed of many more than the dull heavy weather enabled them to obtain. But even these exceptional figures are surpassed by the New York prices of fifty or sixty dollars for bouquets, and a couple of dollars for single blooms of the General Jacqueminot Rose. The value of the latter shows the difficulty there is there, as in this country, in producing high-coloured Roses in the first few weeks of the year, and it would also seem as if this fine old variety was found in America, as it is with us, to be the best forer amongst the high-coloured sorts for very early work. To those who take an interest in gardening it is a pleasing circumstance to learn that in America flowers command such a price, for this of itself is an unmistakable forecast of the growing taste for gardening generally amongst the mass of the people whose pursuits and opportunities permit of their devoting time and attention to it.—*A. Z.*

THE MARKET GARDEN.

Forcing Plants into Bloom.—Forcing flowers in private establishments and in market gardens are two different matters altogether. In the first place, the market grower is a specialist; he fixes upon a plant or certain kinds of plants to grow, and, knowing well what they require, erects his glass structures in such a manner as to best meet their wants. He seldom grows more than one kind of plant in the same house, so that its special requirements may be met in the best manner. Large panes of glass in combination with wood-work as slight as is consistent with safety, a thorough command of heat, and efficient ventilation are what the market grower relies on to command success. Armed with these essentials, he can go to work with confidence, and finishes his plants off in fine style under the most adverse circumstances as regards weather. In early spring a certain amount of sunlight may be counted on to aid the grower in his forcing operations, but during the months of December, January, and February this powerful auxiliary can scarcely be relied on to assist in any material way, and a cloudy sky in combination with a low day and night temperature is what the grower has to contend against. Most people engaged in fruit forcing are aware that the flowers will, as a rule, set well enough if a circulation of air can be maintained around them, even when sunlight is at its lowest ebb, and the market grower has found that by throwing open his ventilators in almost all weather, at the same time maintaining the necessary temperature, he will move his plants along into flower, irrespective of weather, whilst keeping them sturdy, dwarf, and vigorous. This is indeed the keystone of success in the forcing of such air-loving plants as the *Pelargonium*, and which is now brought to market in first-rate condition early in the year. One large grower of this fine decorative plant throws his top sashes wide open, even when the thermometer scarcely rises above freezing, but, having a thorough command of heat, he keeps up, even with this free admission of air, sufficient heat to push the plants briskly along. This treatment, it will be seen, differs much from that generally pursued in private gardens, where in cold dull weather the desired amount of warmth is maintained and but little air given. This difference in the matter of air-giving would alone account for the superior quality of plants grown or forced in market gardens. On the one hand they are enfeebled by close confinement, whilst subjected to high pressure; on the other hand, the vitiated atmosphere is continually being worked out, fresh pure air, charged with health-giving properties, taking its place and imparting vigour and substance to flowers and foliage. Of course draughts are avoided; the fresh air has to force its way downwards, and becomes warm before it can circulate amongst the plants. Briefly summed up, the great essentials in flower forcing are light, heat, and abundant ventilation, the judicious combination of which must ensure perfect success.

Myoporum crystallinum.—I am not aware whether market

growers in this country grow this plant, but I have never seen it in the market. It is, or was, much grown by the Parisian growers, one man alone doing about 30,000 in 4½-in. pots. It is naturally of a procumbent habit, and when thus growing certainly gives no idea of its value as a market plant. The foliage is narrow, but dense, and studded with little crystal-like excrecences. The flowers are white and numerous produced. Some French grower, on the lookout, I suppose, for something novel, was seized with the bright idea of running this little plant up with a single stem some 12 in. to 18 in. in height, forming it into a weeping standard. This brilliant idea met with all the success it deserved, and the little Myoporum became in a short time in eager request amongst Parisian growers. It certainly presents a novel and graceful appearance, and is quite distinct from anything else that I know of, and I should say if well grown would be likely to meet with a genial reception from buyers in this country. Its culture is simple in the extreme, as it strikes freely anywhere in summer, may be run up to the required height, stopped, and the formation of a head of foliage commenced. Wintered in a cool house, it should be shifted on and generously treated for flowering the following summer. With a little management a succession may be maintained throughout the summer months.

Paris Daisy Etoile d'Or.—It is astonishing how freely and continuously this plant blooms throughout the winter. The very same specimens that have been flowering throughout the summer continue to give a harvest of blooms during the winter, and that without the application of constant fire-heat. Just raising the temperature now and again sufficiently to drive out damp and stimulate the functions, so as to keep them from quite stagnating, is all that this *Marguerite* requires. The clear bright yellow which the flowers exhibit is particularly pleasing under the winter sky, and the individual blooms impart an extremely natural appearance to floral combinations of an informal character. There can be no doubt as to the popularity which this plant is destined to enjoy, for when amateurs find it out they will find in it a true source of pleasure. That there is already a great demand for it is apparent from the fact of one grower keeping in stock some 10,000 plants, and still calling for more. One great point in favour of this Paris Daisy is, that, like the rest of the family, large plants may be grown in small pots, a great advantage in more ways than one to the market grower. For furnishing out flowers and for sending to market in small pots, this plant must, until superseded by something better, hold a foremost place, and its culture is, owing to its quick growth, more than likely to prove remunerative.

Strawberry Vicomtesse Hericart de Thury.—This variety has of late attained considerable popularity, and with very good reason, for it is one of the most prolific and hardiest constitutioned kinds that I have ever met with. It is a very free setter, and for this cause alone has become a great favourite with many who have often to get an early crop of Strawberries under considerable difficulties. Being a free grower, there is but little difficulty in getting good plants of it, and it will resist treatment in the winter that would entail the ruin of most other kinds. Were I growing to supply a private establishment I should certainly grow the *Vicomtesse* in quantity, but I would not admit it into a glass-house when growing for profit alone. I was acquainted with this Strawberry some years before it attained its present renown, and I believe took almost or quite the first lot of fruit of it into Covent Garden. The fruit did not belong to me, for I should certainly have known better than to have filled a house with a comparatively unknown kind, but to oblige a friend who found a difficulty with it it went to market with the fruit grown here. The price realised was, however, so small that no thought was given to adding it to the collection here; in fact, a leading fruiterer told me that it was of no use as a market kind. At any rate, his words were, "It is of no use to you," from which I concluded that it would be waste of time and loss of space to grow it. The name I then knew it under was *Stirling Castle*, and I had never heard of any other name for it. Later on the *Vicomtesse* came to be so much talked about, and, from the description, I surmised that my old acquaintance was getting about under an alias. To make the matter sure, I sent for some plants from a reliable source, and found the two to be identical. The object was, however, to test its relative value with other kinds, and this was done to the complete discomfiture of the *Vicomtesse*. It was grown side by side with *President*, *Sir Harry*, *Alice Maude*, *Sir Joseph Paxton*, and a seedling of our own, and was nowhere in the race, that is as regards weight, plant for plant, and marketable value. The great complaint concerning this Strawberry is that it is deficient in size and flavour, and for that reason it does not take in the market. I should, however, add that I am leaving very early forcing out of the affair, as very few market growers practise it now. Four years ago I knew of only two growers who made a

practice of getting in a crop by the end of March, and one of them then informed me that that was his last year; he should give up early work; and I believe that the other has since done the same.

Wintering Pot Strawberries.—The severe weather that we have lately experienced suggests a few remarks upon a subject which may be considered as of some importance, indeed I might say of great importance. For, as all engaged in Strawberry forcing know, a good crop of fruit cannot be expected unless the plants when introduced into warmth are healthy in root and leaf. It has been said, both in *THE GARDEN* and in contemporaries, that affording Strawberry plants the shelter of a glass roof in winter is not only unnecessary, but actually inimical to their welfare, one writer going so far as to assert in the most positive manner that "freezing did them good." The writer did not, however, give reasons for this bold assertion, and I think that it would have puzzled him to have done so. Another writer in a contemporary, tells us that we should not place pot Strawberries under glass when growth is completed, because they are liable either to get too dry or to be kept too close at a time when they should be rapidly sinking into a state of rest. Well, all I can say to this is, that the individual who would neglect a pot Strawberry when at rest would be just as likely to do so when in active growth, and I should advise him not to attempt Strawberry forcing in any form. What I have to urge in this matter is, that protection does not necessarily imply coddling. Surely a plant may be guaranteed against the vicissitudes of our climate without enervating it by undue confinement. The Strawberry is a hardy subject, as we all know, but I am quite prepared to assert that it is grateful for some little shelter. Time after time I have remarked that the greatest weight and the best quality of fruit was obtained from those plants which had been the objects of the greatest care in the winter. For early work I do not think that too much care can be taken of them from the time that growth comes to a complete standstill; every leaf should be green and perfect, and every fibre should be healthy and active. I do not think that Strawberry roots, when the soil around them is kept from getting hard frozen over, ever come to a complete state of rest. Turn a plant out of a pot when one will, the white fibres appear to be in a fit state for the reception of food. This is not so, however, when excess of moisture overtakes it, as then the points of the roots turn black and decay, and much nursing is required to bring them into working condition again. Whatever may be the opinion of the horticultural world in general upon this subject, market growers as a rule are fully impressed with the necessity of providing effectual shelter for their plants. In a general way the plants are brought together in October, and are placed under cover about the latter end of the month. Frames I consider the best place for them, and for this reason, they stand upon a cool moist bottom, do not dry out much, but remain in a uniform state of moisture, and altogether exist under more natural and favourable circumstances than when stood upon a dry shelf in a draughty house. A well-grown plant with the pot full of roots need not be housed until the middle of November, but after that time rain should be ward off and protection given against hard frosts. If the plants are housed in a thoroughly moist state, and the lights tilted at the back, remaining so night and day, not even shutting them down for a few degrees of frost, they will need scarcely any attention in the way of watering, and a free circulation of air being maintained around them they will remain as hardy as if in the open ground. I do not see any advantage in pulling off the sashes in fine weather; it occasions labour and causes the soil to dry out, when the water-pot must go to work, and I always fancy that if the soil can be kept moist without watering the roots remain more active and healthy than when frequent moistenings are found indispensable. One has only to contrast the position of a plant plunged in the open air at the present time with one placed snug and comfortable in a frame in order to thoroughly appreciate the advantages conferred by the shelter of a glass roof. When in the open air, and covered with litter, a heavy fall of snow will crush the foliage as flat as a pancake, whilst under glass every source of injury is guarded against, the plants will get the advantage of every ray of light, and the leaves will be as fresh and green as when placed under cover. I think that if any one will try the two systems for a period of several years, they will arrive at the conclusion that not only is a Strawberry plant which has cost some little time and labour worthy of a little extra care during its resting period, but that such care will be more than repaid by the superior quality and quantity of the crop. All that has been said here applies with great force to *Sir C. Napier*, the market growers' mainstay in Strawberry forcing. This variety is extremely tender of constitution, and will not put up with treatment that such an exceptionally hardy kind as the *Vicomtesse* would endure without material injury. These two sorts really represent the two

extremes amongst Strawberries—the one is very hardy and easy to manage, the other cannot bear forcing, is tender of leaf, and requires the best of treatment to afford profitable returns.

Byfleet.

J. C.

HOTEIA (SPIRÆA) JAPONICA.*

LIKE many other Japanese introductions, this has proved to be one of our best hardy herbaceous perennials; when grown in open borders it is well to protect the early growths from late spring frosts, otherwise some of the best flower-spikes may get injured. Let us, however, consider it in the light of a plant for forcing. Suppose in October we receive a dozen or fifty imported roots or clumps, they should be unpacked and potted, if possible the same day as received, in a compost consisting of three parts good turfy loam, the other part leaf-mould and two-year-old cow manure in equal proportions. The manure must be sufficiently dry to enable its being readily rubbed through a $\frac{1}{4}$ -in. riddle; add sufficient sand to make the whole porous and mix well together; the pots, which should be large enough to admit of a portion of the soil being worked in all round the roots, must be clean and crocked in the ordinary way. In potting press the soil moderately firm, and when all the plants are potted give them a good watering; this done, place them in a cold frame for a week or two, and gradually introduce them into the forcing house by first placing them on a shelf in the coldest part of a frame or house kept at about 50° or thereabouts. When they show signs of starting into growth bring them to the warmest part of the structure, and as soon as the flower-spikes appear they may be taken to the forcing house proper. Each pot should now be placed in a pan of water; these pans should be allowed to become empty occasionally, say once a week; this will to a great extent prevent the soil from becoming soured. Liquid manure diluted to about half strength may now be administered twice a week, and every encouragement given for the plants to make and perfect all the growth possible.

Early Flowering Plants.—Let us now suppose that half the plants have flowered between Christmas and the end of March; if the flowers have not been cut for decorative and other purposes the old stems should all be cut out as the plants leave the conservatory or other structure in which they have bloomed. Gradually harden them off in a cold frame, and when all danger of frost is over place them outside in an open situation, where they will get all the light and air possible; this is essential for the ripening of the crowns. As soon as the foliage shows the least signs of decay liquid manure must be withheld, and the supply of water must also be somewhat diminished, but at the same time the plants must never be allowed to flag. When the foliage has naturally died down the soil may be allowed to get quite dry, and then they may be turned out of their pots, and with a sharp spade or knife cut into pieces of the desired size, or planted out as they are; if cut, let the operation be performed the day previous to that on which they are to be planted. This will allow the wounds inflicted to get somewhat healed, thus rendering them less liable to rot. The bed which should be ready to receive them should have been previously deeply dug and well enriched with leaf-mould and well rotted farm-yard manure; the plants must be planted 2 ft. apart all ways, or even more if ground can be spared for them. When planted, give a good watering and a mulching of half-rotten manure; this mulching is merely to keep the roots moist and cool. In planting, tread the roots firmly in, and if the weather be dry they must be watered regularly; keep the beds free from weeds, and they will be well established before the season is over. What flower-spikes they throw up this first season must be cut out as soon as they can be seen. As regards winter treatment, I believe the best protection for them is that which they provide for themselves—I mean the foliage. If this be allowed to remain just as it falls over and around the crowns it is all they require; of course if this is thought at all unsightly it may be cleared away and a sprinkling of Cocoa-nut fibre or stick or coal ashes applied to a depth of $\frac{1}{2}$ in. to 1 in. Some time during the winter the beds must be carefully pointed over with a fork, but care must be taken not to disturb the roots; cover the ground between the plants $\frac{1}{2}$ in. thick with good rotten manure. All the attention they will require during the ensuing summer will be keeping them well supplied with water and the beds free from weeds. When the foliage has died down, take up the required number of roots before severe frost occurs; pot them, and treat them in every way as directed for imported roots, and I have no hesitation in saying that the result will be most satisfactory.

Late Flowering Plants.—Let us now advert to the other half of the plants which bloom say from May to July; these I prefer

not to plant out the first season, as they have not, as a rule, time to get established before short days and frosty nights set in. Instead of planting these out, I force them a second time in the same pots; the flower-spikes will not be so fine as in the first instance, but if the roots are good to begin with, and the plants are properly cared for from first to last, no one, I think, will have cause to regret having forced them or rather bloomed them a second time in the same pots, for the supposition is that the plants in question are not brought into bloom in the first case until May or June, which is very near the time when they flower naturally, *i.e.*, without any forcing. These plants, I find, possess one special advantage over freshly imported roots, and that is they can, being well established in their pots, be got into bloom with the greatest ease for Christmas, a time when few people, if any, have too many flowers. In all other respects they must be treated as the other plants. When the foliage dies off, lay the pots on their sides in the coldest place you can find, as if they are placed in a position where the sun can shine directly upon them they will commence to grow before they are required to do so. See that all the plants are placed in cold frames before frost occurs. Introduce them into heat as required, give liquid manure every other watering from beginning to end; let it be weak at starting, increasing the strength as the plants advance. These plants should be planted out early the next summer and others bought in, until the stock is sufficiently increased to enable those concerned to lift the plants required from their own beds.

The Foliage a Substitute for Fern Fronds.—It sometimes happens where Ferns are scarce that the foliage of this *Spiræa* has to be used instead of Fern fronds for mixing with cut flowers. When this is the case it is best to select a few plants from the rest, and not to cut from any of the others. These, when planted out, must remain three years before they are again lifted for forcing, unless it is intended to grow them for foliage only. Under the above treatment I have had plants in 7-in. and 8-in. pots each bearing from twenty to forty flower-spikes.

THE INDOOR GARDEN.

SPAN-ROOFED HOUSES.

It seems to be generally accepted as a fact, about which there can be no question, that span-roofed houses should be built with the ends north and south, so that the sun may shine on the east side of the roof in the early part of the day, and on the west side in the afternoon. Now I am inclined to the opinion that in some cases at least this is a mistake, especially in forcing houses in which growth commences very early in the season. During the late severe frost the sun shone brightly for about six hours each day; in a lean-to Vinery with a south aspect, the temperature by sun heat alone, the pipes being quite cold, was 65°, the top ventilators being open a considerable width; with plenty of moisture on the floor, the atmosphere felt very suggestive of healthy plant growth, and when closed early and syringed, was congenial to bursting buds and unfolding foliage. From this house I went into a span-roofed greenhouse, with east and west aspects; the sun was not sufficiently high to have any effect on either side, but just caught the south end; four rows of 4-in. pipes all round were moderately warm, ventilators closed, and yet the temperature was only 45°, a thermometer outdoors in the shade indicating 8° of frost at the time. The difference in the light of the two houses was even more noticeable than the difference of temperature; it was as a November day compared with one in midsummer, the house with a south aspect having the advantage of light and heat.

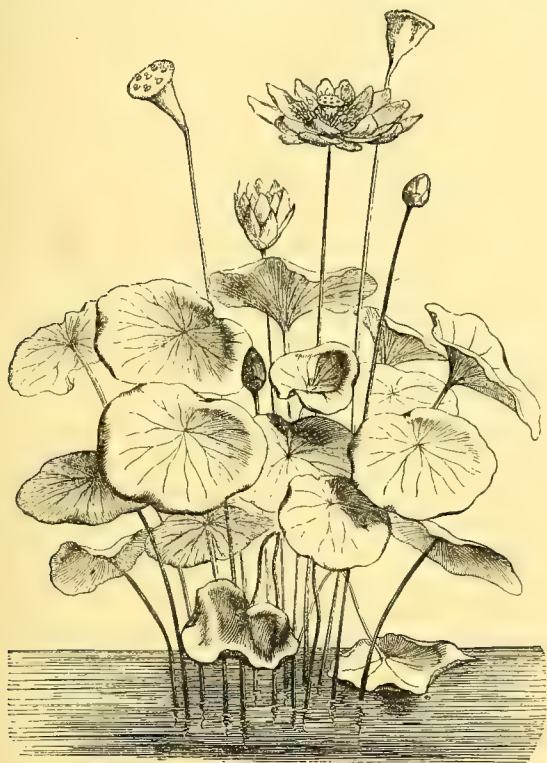
Some may object that the sun never shines on the north side of a house; but if the sun shines on the south side, will not that be better for the plants than if it did not shine on either side?—light and sun heat are in the house, a circumstance which saves fuel. For two years I had charge of a span-roofed house filled with pot Vines, started in November, those on the north side being each year ripe as early and in every respect as good as those on the south side. I have several times grown early Melons in a house with north and south aspects, and certainly prefer such to a house facing east and west. As to plant houses, amongst a mixed collection there are sure to be some requiring more shade than others, yet such plants cannot have too much light, and they will be found to do much better in a position where the sun cannot reach them than when shaded with blinds, besides the economy of having to provide only half as many blinds. I never saw Peaches on the north side of a house, nor do I think they would be so well coloured or flavoured; and other things may be named that would not succeed with a north aspect, but I only wish to point out that it is not desirable to build all span-roofed houses with the ends north and south.—W. C.

* Read by Mr. Hillman, Fenay Hall, before the Huddersfield Paxton Society.

WATER LILIES WITHOUT TANKS.

MR. W. FALCONER, curator of the Botanic Gardens at Cambridge, Mass., gives in the *Country Gentleman* an interesting account of a successful way of growing Water Lilies without the usual costly tank arrangements.

"In the florist's business it is gratifying to be able to note any laudable digression from the stereotyped order of Roses, Pinks, and Violets, and surely Mr. Benjamin Gray, of Malden, Mass., affords a notable example by making a speciality of growing Water Lily blossoms for the market. Mr. Gray is a skilled gardener, an enthusiastic cultivator, and a son of Mr. Wm. Gray, the eminent orchidist, of Albany, N.Y. He has no spacious tank or special Lily house, but on the front bench of a lengthy Rose house are thickly packed from end to end great milk plates and broad holeless seed pans, filled half with loam and full with water, and Lilies growing in them. And on the other side of the pathway, arranged in a low row on the front of the middle bed and beneath the shadow of the bushes, more Lily plates and pans are packed, and in a back row in the house large specimens in tubs are set. They do not crowd the



The Sacred Bean of India (*Nelumbium speciosum*). Height about 5 ft. colour of flowers, rose-pink.

Roses, but rather act as evaporators for them, and thus do good. There are scores upon scores of pans, hundreds upon hundreds of plants—the old clumps being in the tubs, and in the pans three plants for a specimen, mats of runners of the yellow, half-grown seedlings of the blue and red, and myriads of tiny seedlings everywhere. The milk plates are 18 in. to 20 in. wide and of the common form, the seed pans about the same across and some 6 in. deep. The leaves grow up and stretch beyond the water and the pans, but so long as the roots and crowns are well immersed, the leaves wax strong and stout until the waning summer weakens them.

The sorts grown are the pink form of *Nymphaea odorata*, *N. devoniensis*, *cerulea*, *dentata*, and *flava*. The first named is a beautiful pink coloured form of our fragrant pond Lily, one of the sweetest and most favoured of American blossoms. Of course it is perfectly hardy in our out-door ponds, and is only wintered inside for the sake of the stock and convenience. *N. devoniensis* is an exceedingly choice Lily; its blossoms, copiously produced during the summer months, are bright carmine-red and very large, and its leaves reddish-green. It grows robustly in summer, but winters with uncertainty. It is a hybrid, raised some thirty years ago in England, between *N. rubra* and *N. Lotus* (white). *N. cerulea* or the blue Lotus of the Nile is the commonest of greenhouse water Lilies, a copious and handsome species of easy cultivation. *N.*

dentata is a white-flowered, strong-growing, very fine species and a native of Sierra Leone. The yellow Lily, *N. flava*, is that which was re-discovered in Florida a few years ago by Mrs. Treat, and caused such a stir in botanical circles at the time. Before its re-discovery, beyond a figure of it in Audubon's "North American Birds" some fifty years ago, there was no knowledge of the plant. It is of easy and rapid growth, and multiplies exceedingly by means of runners, as do Strawberries. Old plants bloom freely, young ones sparingly. The crowns of old plants arise above the surface of the soil, in stilted-up fashion, sometimes several inches. The blue and yellow Lilies winter fairly in ordinary greenhouse temperature, but *dentata* and especially *devoniensis* require a higher temperature, say 60° to 65°.

"Notwithstanding the multitude of these Lilies grown by Mr. Gray, the demand for the blossoms exceeds the supply. Last year a Boston florist contracted for them all; this year, Mr. G. tells me, several florists want to secure them.

"A good use of pond Lilies in the flower garden is to grow them in tubs. Sink the tubs to their full depth in the lawn, and keep them full of water. Mrs. Pickering, at the College Observatory near here, grows Lilies in this way, and is highly pleased with them, both as regards garden ornament and growth and production of flowers. The genus *Nymphaea*, like *Clematis*, *Aquilegia*, and some others, affords a marked example of red, blue and yellow blossoms being produced by its species."

LARGE CHRYSANTHEMUMS.

WITHOUT at all desiring to act contrary to the editorial suggestion appended to Mr. J. W. Silver's sensible remarks (p. 160) upon the subject of growing large Chrysanthemums, I would like to be permitted to add one or two observations which may at this season be instructive to those who are not thoroughly initiated into the secret of growing large blooms. I think I am correct in stating that the origin of the argument between Mr. Molyneux and "J. S. W." was as to the large blooms being obtained from the "terminal bud," and as this, as a matter of fact, is not the case, one of the combatants is placed *hors de combat*. The argument, therefore, if such it can be called, is practically at an end through "J. S. W." taking up an untenable position. My principal object, however, in writing is to point out that the whole pith and marrow of Chrysanthemum cultivation is "centred" in the selection of the proper bud. The greatest novice in plant growing can grow Chrysanthemums up to the month of July. After this date the cultivator who has not acquired by experience a knowledge of the habits and characteristics of the varieties which he attempts to cultivate is very much like a mariner who has lost his compass. Those who are desirous of making a start in the cultivation of this charming winter flower upon an improved system should procure a small collection of suitable kinds from some trustworthy source, in order to have them true to name and grow from four to six duplicates of each variety. In a year or two a person of ordinary observation will be able to strike out a line for himself, and be able to add to his collection annually as he gains experience. It is not a correct representation to say that because a person grows large flowers the blooming season must necessarily be short. Why adhere to one plan? May we not have a show of such kinds as Elaine, James Salter, Mrs. Rundle, George Glenny, &c., in bloom in October, to be succeeded by the general collection up to Christmas. A third batch, and the most useful of all, would be forthcoming in such kinds as Jardin des Plantes (the cream of the Yellows), Hero of Stoke Newington, and Princess Teck, an offspring of the former. Of Japanese sort, Ethel is to the late stock what Elaine is to the early kinds. Then among Yellows there is Saul and Splendens, the latter of which can be had in bloom into February. A good collection of Chrysanthemums well grown and divided into three batches to come in flower in the order of succession, I look upon as an indispensable adjunct to the flower supply of any establishment. A few plants of Princess of Wales (lilac) or Jardin des Plantes (bright yellow), from 6 ft. to 9 ft. high, with flowers as large as teacups, associated with tall Palms or Ferns in the month of December, might not be considered such unsightly objects even in the eyes of those who cry out "sour Grapes."

Canford, Dorset.

W. HINDS.

— Permit me to suggest what may be a good way to decide the merits of Chrysanthemums grown from cuttings put in seven months previous to blooming and those that have a longer period of growth. It is this, that "Peregrine," Mr. Silver, and any other northern gardener should next autumn when in bloom cut over at the surface of the pot a good average specimen of both large flowered and Pompon Chrysanthemums and send them to your office for your decision as to the merits of each. Personally, I shall be glad to compete, and "Peregrine" being a northern gardener will doubtless

also do so. In making this suggestion I pass no opinion as to the merits of growing a *Chrysanthemum* say eleven months with a view of producing perhaps a dozen extra large flowers. I may say, though, that several years' experience in growing a large batch of *Chrysanthemums* for decorative purposes has convinced me that it is possible to get plants with from 80 to 100 flowers on the average 4 in. to 6 in. in diameter, but not in seven months from the time the cuttings are put in.—H. J. C.

AN INDOOR FERNERY.

ON visiting some time ago the gardens of Mr. J. Edwards, Kidbrook Lodge, Blackheath, I was particularly struck with the luxuriant growth of Palms and Ferns which I saw there planted out in a large span-roofed house called the Fernery. The interior walls of this house, which rise to about 12 ft. in height, are lined with rockwork, and present a fine bold appearance; a bed rising to a considerable height and composed of the same materials as the sides occupies the centre, and this is intersected by flights of steps and winding paths which lead to recesses in various parts of the house. On the more elevated portions of this bed are planted *Cocos flexuosa*, *Pritchardia pacifica*, *Geonoma Schottiana*, *Hyophorbe amaricaulis*, and *Cocos Weddelliana*, a space on the ground level being occupied by a magnificent plant of *Musa coccinea*. Dotted about among the Palms just named may be seen grand bushes of *Nephrolepis exaltata*, *Asplenium Belangeri*, *Adiantum formosum*, and *Pteris argyrea*, while the lesser growing varieties of Ferns and *Lycopodiums* hang over and beautifully furnish the numerous pockets and projections down to the pathways. On the side walls are likewise to be seen some fine examples of *Goniophlebium subauriculatum* and *appendiculatum*, the former with fronds reaching down to the length of 5 ft. or more, while the fine tints of the latter variety present a very pleasing appearance when grown to perfection, as it is here. I must not omit to mention the excellent effect produced by fine-foliaged *Begonias*, which are tastefully interspersed among the many Palms, Ferns, and *Lycopods* that adorn the side walls. The lovely *Todeas* and *Trichomanes* to be found in several of the recesses are like the other plants in this house—in robust health and beauty, while the rockwork formation is all that can be desired; the planting for effect is also the outcome of cultivated taste and judgment.

A. J.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Pelargonium Rollisson's Unique.—Taking the peculiar merits of this old-fashioned *Pelargonium* into consideration, it is doubtful whether it enjoys so much popularity at the present time as it is entitled to. It is a useful summer bedder, producing a very pleasing effect when its trailing shoots are pegged down close to the soil. The colour of the flowers is rich rather than brilliant, and this may account for the neglect shown it by those interested in maintaining a garden gay throughout the summer. As a winter and spring flowering plant its value can scarcely be over-estimated, for it blooms freely and continuously when subjected to the ordinary temperature of an intermediate house. The best way to strike this *Pelargonium* is to insert the cuttings in fine sandy soil singly in 2½-in. pots, placing them in full sunshine in a light well-ventilated structure. If taken off in August early in the month they will be well rooted by the beginning of the autumn, and will make excellent plants for setting out in the open air the following spring. For supplying cut flowers in early spring this variety should be grown on into a large specimen. As the shoots require some support, strong sticks should be inserted round the edge of the pot, training the branches to them. A well-clothed and flowered specimen is a fine ornament to any glass structure, and where large conservatories have to be furnished, this *Pelargonium* will be found of great service.—J. CORNHILL.

Carnation Flowers from First Year's Seedlings.—For the more common and inexpensive forms of *Carnation* seed I would like to suggest the advisability of getting the plants in flower the first year, thus effecting a considerable economy both in time and space; for if the seedlings can be induced to declare themselves the same year in which the seed is sown, it seems to me that, in the case of bought seed, which of course is not likely to produce valuable varieties, a great deal of subsequent waste of time is necessarily avoided. The following plan which I have pursued with considerable success myself I have found very useful for the reasons above stated, and though, of course, absolutely out of the question in the case of florists' hybridised seed, it is very convenient for purchasers of "collections" (if 12 superb varieties, 10 seeds each). I planted one of these collections (600 seeds) the other day, and in course of time will record the result. The plan I adopt is to sow the seeds now in

pans in a frame. As soon as the plants are big enough, prick them out round the edges of the pots; then as they get about 3 in. or 4 in. high, plant them out in a very richly prepared bed 6 in. apart, and pinch out all side-shoots up the main stem as soon as they appear, letting the plants make only one flower on a single stem. In the autumn most of them will flower, when the singles, &c., may be discarded at once. If any do not flower in the autumn, pot them up in 4-in. pots and place them in the house where they will flower in the winter. I have now blooms produced from ordinary seedlings in the above manner; all the attention they require is tying up the stems, which must be kept clear of offshoots as they advance, watering periodically with manure water, and frequently in the ordinary way in dry weather.—GIROFLE.

Planting out Callas.—It may not be generally known that this useful winter-flowering plant succeeds well and forms fine sturdy specimens when planted out-of-doors in summer. The ground should be well dug and manured, then as soon as bedding plants will stand out-of-doors the *Callas* may be planted, and if watered when necessary during summer will, when autumn comes, have made splendid growth, and be well set with flowers. Even many that were but small offsets when put out will have developed into fine plants, their sturdy appearance and dark green foliage showing that they are quite at home. In the autumn they should be taken up carefully, and when potted kept somewhat close until recovered from the check sustained in lifting; if these precautions are taken they will not be in any way injured.—ALPHA.

Neapolitan Violets.—I was pleased to see Mr. Allan (p. 113) advocating the claims of this Violet. I do not wish to disparage *Marie Louise*, our stock of which I hope to increase, but I feel sure that many have discarded the *Neapolitan* without giving it a fair trial. We have been gathering blooms of it since October; few other Violets will give so long a succession, and as regards delicate colour and perfume the blooms are simply exquisite. I would strongly urge all growers of this Violet to pay particular attention to Mr. Allan's remarks about selecting runners from the sturdiest and freest flowering clumps; for if this is not attended to, the stock soon deteriorates, but by constant selection it may be improved.—JAMES GROOM, *Linton*.

I shall be very pleased to show Mr. Wm. Allan or anyone else my Violets, and let them judge for themselves. I have not one frame, but a dozen of both sorts, and the *Marie Louise*, from which I have been picking all the autumn and winter, is still covered with hundreds of fine healthy buds and blooms, and I expect to keep on picking from it long after the others are over. In fact, I am never without Violets. We all know that the *Neapolitan* is good, and I have no wish to despise it, but I am pleased to think we have one very much better.—H. COOK, *Hazelbourne, Dorking*.

Fuchsia splendens.—This, though by no means new, is seldom met with, and yet with a little attention it will continue to produce its showy scarlet and green flowers during the whole of the winter. I take cuttings of it in spring or early in summer and grow them on without stopping, so that by the end of September they will have made fine pyramidal plants, which may then be rested slightly, and if after that it is introduced into the greenhouse or, better still, a rather warmer structure, it will commence flowering at once and will continue till the spring.—ALPHA.

Sowing Small Seeds.—Nothing perplexes amateurs and others who are not well acquainted with gardening more than the raising of plants from seed. To get up large seed is an easy matter, but not so in the case of small seeds, as they require very careful sowing and management, or failure is sure to be the result. Take *Calceolarias* for instance, or *Begonias*, the seeds of which are as fine as dust, and sow either in the ordinary way, and the chances are that the whole will be lost; whereas by preparing the soil properly and sowing on its surface both kinds of seeds germinate freely. First drain the pan or pot, and then put over the crocks some Moss or rough siftings from the potting bench, and on these some of the finer soil, finishing off on the top with very fine sifted soil mixed with a little silver sand. All should then be pressed down and made level and smooth, and then watered through a fine-rosed pot or damped by means of a syringe, when after standing to drain for a time all will be ready for sowing. This can be the most readily done by opening one end of the packet and gently shaking it sideways, keeping it when doing so nearly on a level, in order that the seed may leave the paper slowly and evenly, as then there is no difficulty in causing it to be distributed regularly over the surface; this part of the work over, the next thing is to provide against the seed suffering from want of water or the soil getting the least dry, as that is a rock beset with failure. To prevent the soil drying, nothing answers so well as a piece of glass laid over the pot or pan, as it keeps the air in a thoroughly humid condition. A bell or hand-glass answers the

same purpose if kept close, and in sunny weather it is always advisable to shade, as solar heat and light soon draw out the moisture. Should the soil become the least dry, the safest way to damp it is to bedew it with water from a syringe, as it can be done more lightly than through the rose of a pot if the syringe is used with dexterity. Seeds of a larger size than those named may be slightly covered or have a very thin sprinkling of fine silver sand scattered amongst them, but only just enough to give colour, and not bury the soil. Seed the size of Mustard may be buried the eighth of an inch deep, and so on in proportion, but the great point with all to secure free germination is to have an equable warm, moist bed, from which they come forth without any loss.—S. D.

TREES, SHRUBS, AND WOODLANDS.

CONIFERS ON THE PRAIRIES.

IN a recent number of THE GARDEN I noticed a reference to the *Picea pungens*, known as the Silver Spruce in the Rocky Mountains. As you say, truly this is a most beautiful tree, and may justly be said to stand foremost among the mountain Conifers for its symmetry and the beauty of its foliage. This tree grows on what are known as the "foot-hills" in conjunction with the Douglas Fir, preferring the borders of streams. *Picea Engelmanni* is also found in the same localities, at an elevation of from 6000 ft. to 7000 ft., but the Douglas Fir is found still higher. *Picea pungens* is a very stately tree when it reaches a height of 150 ft. When 50 ft. high, standing by itself with room to display its perfectly symmetrical shape, stiff horizontal branches extending 20 ft. from the trunk, the lower ones sweeping the ground, covered with rich foliage which glistens like silver under the rays of the morning sun, it is a grand object for a lawn or large plantation. There are two varieties, only differing in colour, one being glaucous and the other entirely green, darker than the Douglas Fir. A few years ago, while procuring a carload of these trees, one of the sudden showers incident to that region forced us to shelter, and, cutting an opening, we found a natural tent more than 30 ft. in diameter. Here we cooked and ate our dinner, and found, when we came out, that the ground was white with 1 in. of snow, which had fallen so silently unknown to us in our secure retreat. More than once I have found such places in the summer time very agreeable to spend the night, with blanket spread on the thick bed of fallen leaves, and the air laden with the pleasing resinous fragrance. Storms of sleet and ice never break down these stalwart trees. I have found no difficulty in transplanting these varieties from that high altitude to one 4000 ft. lower, where they have made a satisfactory growth. During last May I moved several hundreds 1½ ft. to 4 ft. in height with a loss of only 10 per cent., and the season was the driest we have had for years.

An article a few years ago in the "Journal of Forestry" advocated the planting of the Douglas Fir in conjunction with the Larch. The foliage of the Douglas Fir is not as dense as that of *Picea pungens*, of a light green, with branches inclined to droop. The tree attains a large size on the Pacific coast, and furnishes a great amount of the timber for export to Asia, known there as the Yellow Fir. The forests of the eastern and central regions of the United States have been of late years so extensively cut away that the only heavy timbered tracts are in the north-west, and these will soon be invaded by railways. With a possibility of a future timber famine, increased attention is being called to replanting forests, and large planting on the bare prairies where but few trees exist. I have had no difficulty in transplanting any of the Spruce family, they having more fibrous roots than the Pines.

Another grand tree, *Abies grandis*, deserves especial mention. It is tall and imposing, has strong stiff branches in regular whorls, and leaves dark green above and glaucous below. I have often noticed, where the trees had a chance to spread their branches, the lower ones with their heavy foliage drooped to the ground, there would be a cordon of young trees of from 10 ft. to 12 ft. in height which had taken root from the branches of the parent. The wood is soft, very white, eminently adapted for beautiful inside finishings. And here let me say that the American people are largely using our woods for finishing their dwellings, from pantry to drawing-rooms, while the railway car builders are finishing their elegant day, sleeping, and dining carriages with alternate panels of American woods, showing Nature's beauty undefaced by paint.

Returning to our Rocky Mountain Conifers, the *Picea Engel-*

manni is another grand variety, the most alpine of all the Spruces being often found at an altitude of 10,000 ft. In lower altitudes it reaches a height of 100 ft., very pyramidal, and beautifully glaucous. The wood is white, soft, easily worked, and valuable.

Of the *Picea* family, *Pinus ponderosa* stands justly at the head as a timber tree. It is called by the mountain men Black Pine. Its dense, deep green, massive foliage strongly resembles that of the Austrian. By all it is acknowledged as the grandest of North American Pines, and called Yellow Pine on the Pacific coast, where it abounds. *Pinus flexilis* a five-leaved Pine, also seeks a high elevation, but does not grow to the great size of the *ponderosa*; still it is a beautiful ornamental tree. *Pinus contorta*, (twisted Pine) does not grow to more than 40 ft. or 50 ft. in height, but its peculiarly fine, light green foliage makes it an excellent lawn tree in contrast with darker-leaved kinds.

Juniperus cœrulea, with very bright silver foliage; *J. occidentalis aurea*, golden tipped; and *J. prostrata*, which has a bright lemon yellow colour in winter, are all beautiful trees for lawns or plantations.

We have gone back to the old nomenclature of Europe, substituting *Picea* for *Abies*. This has been brought about by Dr. Engelmann, of St. Louis, the best authority on Conifers on this continent.

JAMES T. ALLAN.

Omaha, Nebraska.

THE HEMLOCK SPRUCE IN WINTER DECORATIONS.

I HAVE been much pleased with the light graceful effects which a free use of this Conifer imparts to winter decorations. Tastes differ, and I suppose that each one of us has his favourite evergreen tree, but if there is one member of the large and varied family of Conifers that I love more than another it is the ever verdant, graceful Hemlock. Ever fresh and green, it stands proof against winter's rudest assaults, and although forming a dense mass of foliage, so thick and impenetrable as to be quite eye-proof, the numerous slender feathery branchlets so vary its outline as to render it one of the most pleasing objects in the garden landscape. We have been told that this fine Conifer does not attain anything like its maximum development in this country. So much the worse for us; but I for one am willing to be content with it as it is, for although it may not attain to its true stature in our woods and gardens its beauty is so great, even in this incomplete stage of growth, that we cannot well afford to dispense with it. I am, however, wandering from my subject, for I intended to call attention to the peculiar merits of the Hemlock for Christmas decorations. I have often remarked that where many dense habited evergreens are employed, such as the Laurel and the Holly, something of stiffness and formality is sure to prevail in the arrangement, and although even such a feathery foliated subject as Lawson's Cypress may be plentifully used, there will generally be an absence more or less of that informality and irregularity of outline which true taste ordains should be a marked feature in decorations generally, whether composed of flowers and foliage intermixed or verdure alone. I do not know of any evergreen which exhibits so much feathery grace when employed in a cut state as this, and a few branches of it stuck in here and there have a magical effect in the general arrangement, imparting grace and freedom where stiffness and formality would otherwise reign supreme. If this Spruce had no other value it would be worth growing for the supply of young shoots for decorative purposes. In our little village church the Hemlock has this year been used in a very happy manner, and the effect has been so pleasing, that I feel it incumbent on me to draw the attention of your readers to the exceptional merits of this tree for such purposes. As near as an evergreen tree can supply the place of a Fern the Hemlock does. At first glance and by gas-light I fancied that some of the strong growing *Adiantums* had been requisitioned, and I was agreeably surprised to find that my favourite Conifer was the object of my admiration.

JOHN CORNHILL.

Trees and Shrubs at San Remo.—It may interest some of your readers to know that the curious *Casuarina equisetoides* mentioned by Mr. Inchbald (p. 153) is very nearly, if not quite, hardy in this country. I have several young plants which I raised from seed brought from La Mortola, and which have been hard frozen this winter in a cold greenhouse. In the public garden at San Remo there is a lovely hedge of *Pittosporum*, as sweet as an Orange-grove in March; it is wonderful that we so seldom see it in our southern counties. Two other plants interested me besides those mentioned by Mr. Inchbald, and I should like to be able to get them,

viz. : *Cocculus laurifolius* and *Senecio petasites*. The first has beautiful evergreen leaves, three-ribbed like those of the Camphor tree; the second is like a large Mexican Composite.—G. H. W.

SOME OF THE OLD TREES AT KEW.

THAT portion of the Royal Gardens of Kew comprising some half-dozen acres, situated near the principal entrance, and known as the Old Arboretum, is full of interest, inasmuch as it not only contains some exceptionally fine examples of rare trees, but is the site of one of the oldest tree gardens in Europe, for so long ago as the middle of the seventeenth century a collection of trees and shrubs was cultivated by the occupier of this ground at that date. The noble trees



The Grey Walnut (*Juglans cinerea*).

to be found here, like those in the Arboretum at Syon, on the opposite shore of the Thames, clearly show their character in a mature state. These fine old trees are, however, unhappily becoming scarce every year. Some have been blown down, but more have been cut to make room for younger ones, a circumstance to be regretted, as it will be long before such saplings make trees which will convey any idea of their mature character.

Even at the present time the *débris* of some fallen Elms of huge dimensions is being cleared away, and others, including a grand tree near the Wood Museum of the Black Walnut or Butter Nut



The Mocker Nut (*Carya tomentosa*).

(*Juglans nigra*) have also been removed. Of this handsome North American tree there are, however, a few others in the Garden. Of the common Walnut (*J. regia*) there are likewise some huge trees, one near the No. 2 Museum being particularly fine. We never remember seeing at Kew a full grown tree of the Grey Walnut (*J. cinerea*), though it is the handsomest of the three species. It is nearly allied to the Black Walnut, but differs principally in bearing oblong instead of roundish fruits. The Hickory trees (*Carya*) are nearly related to the Walnuts, and are

handsome trees with elegant pinnate foliage. Though there are no specimens at Kew remarkable for large size, there are several kinds represented, including the Mocker Nut (*C. tomentosa*), the



The Willow Oak (*Quercus Phellos*).

Pig Nut (*C. porcina*), the Pecan Nut (*C. olivæformis*), Shell-bark Hickory (*C. alba*).

Oaks.—The Turkey Oak (*Quercus Cerris*), near the main walk, will compare favourably as regards size with any in the country.



The Western Cork Oak (*Quercus occidentalis*).

It forms a conspicuous object in that part of the Garden, and affords ample shade and shelter to visitors under its wide spreading



The Scarlet-fruited Thorn (*Cratægus coccinea*).

branches. The Willow Oak (*Q. Phellos*) is represented by a grand specimen a few yards distant from the Turkey Oak in question,

and in summer when its bright green leafage is at its best it arrests attention. Though this is one of the hardiest and most rapid growing, as well as one of the most distinct of the American Oaks, it is but seldom seen in private gardens, and certainly not so often as it should be.

Near the Wood Museum are some fine examples of the Champion Oak of North America (*Q. rubra*), which in autumn is resplendent with bright, purplish-red, decaying foliage. On the same lawn are some noteworthy specimens of the Fulham and Lucombe Oaks, remarkable for their almost evergreen character. One variety of *Q. Cerris* named sub-perennis still retains its foliage, though much disfigured by frosts and snow. A fine tree of the toothed leaved form of the Holm Oak (*Q. Ilex serrata*) is worthy of note, while an unusually large tree of the type may be seen near the Palm house. The true Cork Oak is represented by only small and comparatively young trees, but of the western Cork Oak (*Q. occidentalis*), a near ally to it, there is a noteworthy example near the Ferneries; it is a native of Western Europe and differs principally from *Q. Suber*, the true Cork Oak, in the acorns being matured in the second year; whereas, in most Oaks they are ripened the first year.

Close to the western Cork Oak is an exceptionally fine specimen of the Scarlet-fruited Thorn (*Crataegus cocinea*), one of the largest we know of; it is a beautiful species showy with white flowers in spring and scarlet fruits in autumn. On the same lawn, near the rockery, is, perhaps, the largest tree in this country of the Hop Hornbeam (*Ostrya carpinifolia*). This specimen was selected by Loudon to illustrate his "Arboretum," and he could not have chosen a better. When covered in spring with its singular catkins, which strikingly resemble Hops, this tree is very attractive. A few yards from this tree is a magnificent specimen of the Japanese Sophora (*S. japonica*), the branches of which are so large that it has been found necessary to support some of the largest of them by means of chains. A similar aged specimen of False Acacia (*Robinia Pseudacacia*) is a conspicuous object near the Temple of the Sun, where it forms a striking contrast with the Cedars already alluded to. Other trees of lesser note are the Yellow Wood (*Cladrastis tinctoria*), the North American Nettle Tree or Hackberry (*Celtis occidentalis*), the Persimmon (*Diospyros virginica*), the Sassafras (*Laurus Sassafras*), Wistaria, and Red and White Maples.

Conifers.—Of these there are a few remarkably fine examples, the most interesting being an old tree of the Chili Pine (*Araucaria imbricata*), one of the first brought to the country, having been introduced by Archibald Menzies in 1792. It is still in good health, though denuded of branches half way up the stem. It frequently bears a good crop of its huge cones, and when laden with them it has a singular appearance. Near the principal entrance is a very fine tree of the Corsican Pine (*Pinus Laricio*), considerably over 100 ft. in height, its huge head of spreading branches towering above every tree in its vicinity. On the same lawn are some other kinds of Pines, such as the Cluster Stone Pines, of a size sufficient to show its true character. The other Conifers are not remarkable for size, with the exception of a fine tree of the Gingko (*Salisburia adiantifolia*) near the Ferneries, and the Cedars of Lebanon near the Temple of the Sun. The latter is an admirable illustration of the manner in which this stately Cedar harmonises with ornamental architecture; the spreading tabulated branches just overtop the dome of the Temple, and produce a fine effect. W. G.

Bougainvillea glabra Out-of-doors.—Has any of the readers of THE GARDEN ever tried *Bougainvillea glabra* out-of-doors? "Peregrine" calls attention to this plant, and, owing to the chance way in which it was first flowered, if I remember rightly, it was supposed necessary to starve it in order to flower it. Now, however, it is found that the plant is simply perpetual-flowering, provided it be kept growing with abundance of root-room and with heat and space for its branches. This plant is, however, much more hardy than is generally supposed; we have carried it over two winters against a wall in the open air with the occasional covering of a mat, just as used to be done in the case of *Fuchsia Riccartoni* when it was more a favourite than it now is. The *Bougainvillea* grew well and flowered late every summer, the foliage assuming a darker green than when grown indoors, and the flowers were also of a much darker shade of pinkish-mauve if such words can describe a colour. Though this is a South American plant, said to scramble to the tops of the highest trees in

Trinidad, yet it is stated to be common enough at Gibraltar and up the Mediterranean. On warm walls in favourable situations in the south of England it would be sure to do quite well; where *Mandevilla* and *Rhynchospermum* succeed this *Bougainvillea* will also thrive.—HIBERNIAN.

Phenomenal Trees.—In THE GARDEN (page 190) mention is made of a remarkable tree or rather a peculiar association of two trees in Flanders. There was a few years ago, and probably is still, a curious specimen at Bicton, in the vicinity of the Hermitage. A large tree of the common Oak, about 8 ft. or 10 ft. from the ground, divided into several branches, and from the fork sprang a young thriving Beech, which overtopped the Oak, and grew vigorously the roots having in all probability found their way through the interior of the trunk to the soil. Growing from the same place was a Mountain Ash, apparently quite at home, as it did not only appear to be thriving, but flowered and fruited freely. The top of this tree, therefore, was Beech, lower down Beech and Oak, and still farther down the Mountain Ash stretched out almost horizontally.—ALPHA.

The Frost and Conifers.—Another terrible year for the fashionable Conifers. The poor Wellingtonia seems sadly scorched about London, and in truth it is no great loss, for this much overprized tree is one of the poorest in form that we have ever introduced. The young state appears to be the only one in which we can enjoy it in this country, and in that state it is generally a poor object. And yet people make avenues of this. It is sad to think of the number of places that have been spoiled by dotting this and other tender Conifers over the gardens and parks, actually making avenues across the best part of the grounds of such worthless and untried trees, as regards the country generally.

Berberis repens and the Frost.—One effect of the frost may be seen in the bronzed appearance of a great many plants of this *Berberis*, large masses of which give one the idea of their being composed wholly of the purple-leaved variety; whereas, they were all seedlings, varying of course greatly in depth of colour, but now of a uniform purple tint. Many have been more or less injured by the frost, but in the majority the colour of the leaves only is affected; every winter the foliage becomes bronzed, but now it is much deeper than I have ever before seen it.—ALPHA.

NEW TUBEROUS BEGONIAS OF 1880.

DURING the fine, warm, and sunny summer and autumn with which we were favoured last year in the south of Ireland I had again the pleasure of continuing my culture of the Tuberous Begonias in the open air, and of comparing with the best of the older varieties distributed in previous years a considerable number of the novelties both single and double sent out by the leading French and Belgian growers during the spring of that year. Of the relative and respective merits and beauties of such of these as seem to me worthy of notice I send you the following brief notes, jotted down when each variety was at its best, for the information of those of your readers who grow these beautiful plants, and hope that they may serve as some guide to those about to add to their collections during the coming spring as to which of the novelties are best worth getting. With this end in view I have purposely delayed the publication of these notes from the autumn, when they were made, till now, when the principal growers usually issue their spring catalogues, and when selections had best be made. Of the twenty-three single-flowered new varieties received, eight came from M. Van Houtte, of Ghent, four from M. Victor Lemoine, of Nancy, four from M. Crousse, of the same town, three from M. J. B. Deleuil, of Marseilles, two from Messrs. Thibaut & Keteleer, of Sceaux, near Paris, and one from M. Fontaine, of Boulogne-la-Reine, in the same vicinity.

M. Van Houtte's eight varieties were—

MADAME DE GRAND RY.—A good solid flower, well shaped, and of a fine deep shade of scarlet, borne on somewhat pendulous foot stalks, but unfortunately somewhat delicate in habit and slow in growth. Perhaps best adapted for pot culture.

MADAME ROGER DES GENETTES.—A somewhat coarse large-foliaged upright-growing variety, producing extremely large female flowers of a fine deep carmine colour. From some cause unknown to me none of the male blooms of this variety came to perfection here this season.

MADAME DESCAT.—In the open air this variety was of but inferior merit, having only medium-sized flowers of a washy and indistinct shade of colour, but it improved and cleared out greatly towards the end of the season, when lifted into a pot for the greenhouse, when the centre of the flowers became pure white, with pretty rosy edges.

DOCTEUR GOPPERT.—A low growing variety much resembling the same raiser's older variety, P. E. de Puydt, but an improvement on it in every way, having fine stout upright flower-stems and larger flowers of a rather deeper shade of colour, finer substance, and almost flat when fully expanded.

PRINCESSE MESTSCHERSKY.—A fine vigorous-habited, upright-growing variety, with large flowers of good shape, both male and female, borne on stout short foot-stalks, and of a pleasing deep shade of rose colour. A very free-blooming variety.

ANTONIO MARON.—A plant of very dwarf habit of growth, producing fine large flowers of a deep carmine shade, borne unfortunately on very pendulous foot-stalks—a great drawback. The male flowers are often semi-double.

SOUVENIR DE WILSON SAUNDERS.—An upright-growing variety, producing good-sized flowers of rather thin substance of a pleasing shade of creamy-white, the edges of which are evenly suffused with clear rose colour. A very pretty and novel variety; quite an acquisition to any collection.

ARTHUR DE WARELLES.—A plant of dwarf habit with medium sized creamy-white flowers of somewhat thin substance. A variety of about second-rate merit.

M. Victor Lemoine's four varieties are—

JEANNE D'ARC.—A good pure white inside, the outside of the petals roseate, of medium size, borne on fine upright foot-stalks. A free bloomer and of low growing compact habit.

L'ABBE FROMENT.—A variety with compact habit of growth, producing good sized flowers of a fine deep clear yellow inside, the outsides of the petals slightly tinted with red. The flowers are borne on stout upright foot-stalks, and the variety is altogether a great improvement on the same raiser's older variety Eldorado, and is, I think, the best yellow I have seen.

MEISONNIER.—A variety of but inferior merit, not requiring any detailed description.

LEMOINE'S MRS. LAING.—This variety, sent out as a pure white single, is like some few other sorts (notably the same raiser's M. Marcotte) subject to variation, as the tuber grown by me in the open air produced perfectly double male blooms of the finest size and substance and of a delicate pale blush colour, while those grown under glass at the Stanstead Park Nursery produced during their entire season of bloom pure white and perfectly single flowers. This variation is very remarkable, as in the case of the variety above referred to, the same tuber produced single male blooms one year, and perfectly double the next.

M. Crousse's four varieties were—

ADMIRATION.—An upright growing variety, producing fine well-shaped blooms of the most brilliant shade of scarlet, somewhat deficient in substance, but on the whole a most beautiful variety.

ALBERT CROUSSE.—A really first class variety, of fine erect branching habit of growth, producing in rich profusion large light red flowers of the finest form and substance. This variety should be in every first-rate collection.

MADAME LA BARONNE SALADIN I believe to be a very fine variety, with flowers of the purest white, but the tuber sent me unfortunately did not grow, and I could only form an opinion of it from blooms sent me from England in a box by post, which, however, reached me in good condition.

INION.—A somewhat small flowered variety, only interesting from being of a shade of colour new among Begonias, being a clear bright amaranth, but otherwise not worth growing.

Messrs. Thibaut and Keteleer's two varieties were—

COUNTESS OF KINGSTON.—A really fine and first-class variety of good vigorous and branching habit of growth, producing large flowers of the finest substance and richest shade of deep blood red. Quite an acquisition to any collection.

MISS BRISCOE.—An exceedingly free blooming variety of upright habit of growth producing flowers of medium size and rather thin substance, with the outer half of the top and bottom petals of a deep salmon colour and the side petals and centre pure white. Very interesting, as being the first instance of a distinctly marked bicolor in this family.

Mr. J. Laing's one variety was—

REINE BLANCHE.—Almost identical with Lemoine's Jeanne d'Arc, but with rather smaller flowers of thinner substance. This variety may improve when grown in a pot under glass, as it does not seem of sufficiently robust constitution to bloom well in the open air.

M. J. B. A. Delenil's three varieties were—

MARQUISE DE CLAPIERS.—A low-growing and apparently somewhat weak constituted variety, better suited perhaps for pot culture, producing medium-sized blooms, on weak pendulous foot-stalks, of a pale blush white.

LE BOREAL unfortunately failed to grow with me.

VICOMTESSE DE CARNE.—An upright-growing variety, producing

medium-sized blooms of good form and substance, of a light rose colour inside, the exterior of the top and bottom petals being of a deep carmine.

M. A. Fontaine's one variety was—

FLORIAN.—An upright grower, much resembling the last-named variety, but with male blooms of finer size and substance.

I can also highly recommend the following six older varieties raised and sent out by M. Crousse, of Nancy, in former years, but received and bloomed by me this year for the first time, as well worth adding to any collection:—

TROCADERO.—A very fine variety, resembling Veitch's Vesuvius in shade of colour and habit of growth, but in every way superior to that fine old variety in size and substance of bloom.

PAUL QUEQUIGNON.—A variety of upright habit, producing an abundance of flowers of good size and substance of a vivid shade of orange-scarlet, borne on stout foot-stalks.

GRAHAM BELL.—A variety of vigorous habit and strong upright growth, producing freely large deep red flowers resembling those of Fontaine's fine variety Lelia.

FRANÇOIS DE CRAEN.—A fine vigorous growing variety, producing blooms larger and somewhat higher coloured than those of Van Houtte's fine old variety Massange de Louvrex.

ATILA HARTMANN.—A robust growing variety of good upright habit, producing handsome blooms of good size and substance of a shade similar to Lemoine's fine old variety Rubens.

PRESIDENT HARDY.—An upright growing variety with large well opened flowers, of a pleasing deep shade of rose colour, borne on stout lateral foot-stalks.

Of the double-flowered varieties that bloomed here this season, five were from Van Houtte, of Ghent, named Mademoiselle Bertha Frœbel, Mademoiselle Henriette Boutez, Mademoiselle Gabrielle de Nocker, Mademoiselle Valentine de Nocker, and Mademoiselle Jeanne Pecqueur, of which only the last named is of first-rate excellence, being quite the fullest and most evenly double yellow Begonia that has yet been sent out. It may be described as a fully double form of Lemoine's older variety Le Pactole, and, like it unfortunately, bearing its flowers on long weak pendulous foot-stalks, which require supporting or tying up to sticks to enable you to see them properly. The plant is of a free very branching habit of growth, with large-pointed, deeply-veined foliage of the Pearcei style. The colour of the inside petals is a clear pale canary yellow, the exterior of the two main guard petals being slightly stained with dull red. Another variety sent me by this firm by mistake as the third of the above-named, which it afterwards turned out not to be, and is still unnamed, would if it had not the unfortunate fault sometimes possessed by these flowers when grown in the open air (which they usually lose when grown under glass) of dropping its male flowers in a bud state unopened during the whole of the earlier part of the blooming season, be a very fine variety, as it produces fully double male blooms of a fine deep shade of carmine, with curiously developed yellow antheral tips to most of the petals, such as I have never before noticed on any other double Begonia.

From M. Lemoine, Nancy, came five varieties:—

WILLIAM ROBINSON.—A low-growing variety, with thick, roundish, leathery foliage, producing freely on stout upright foot-stalks fully double male flowers, the outer or guard petals of which are white, the bunch of inner petals the palest shade of yellow. Lucie Lemoine is altogether white.

MADAME THIBAUT.—An exceedingly free growing and profuse blooming variety of low branching habit of growth, covering itself with medium sized blooms of a clear pale sulphur yellow when grown in the open air (but coming white when grown under glass), the males of which are rather more than semi-double. An exceedingly pretty variety.

MONS. VARROY.—An exceedingly beautiful variety of low-growing habit, and producing, unfortunately on somewhat weak and pendulous foot-stalks, fine large pale red blooms, the males of which are fully double and somewhat resemble in shape those of the same raiser's older varieties, Emile Lemoine and Pantheon, on both of which it is a decided improvement. Mon. Bouchet, of Billancourt, sent two varieties.

BERENICE.—A fine upright growing kind of free-branching habit of growth, with exceedingly double and beautifully fringed male flowers of a fine carmine shade, somewhat resembling those of the same raiser's last year's variety, Duchesse de Cambacères, but more evenly double and less coarse.

ESTHER.—A fine free-growing branching habited variety with large semi-double male blooms of a very pleasing shade of deep lake. *Belgrave, Queenstown, Co. Cork, Ireland.* W. E. GUMBLETON.

The Best Form of Garden Account Book.—Will any of your readers kindly tell me of the best form of garden account book

I mean the book for recording and checking the various flowers, fruits, and vegetables supplied from the garden, and their value.—J. H.

GARDENING FOR THE WEEK.

Flower Garden.—The earth being once more free from frost and snow, beds containing Violets, Arabis, Alyssum, and Myosotis will require regulating, pegging, and top-dressing to fix the plants firmly in their places. Where this kind of bedding is well done, a large stock of store plants is needed for making good all losses, and as these will have been protected from frost, no time must be lost in replenishing the beds and making all neat by dressing up the edgings preparatory to sweeping and rolling the grass and gravel. In many places it is to be feared that whole beds of Myosotis will have been ruined for the season, and as one gap destroys the beauty of the arrangement, few subjects offer so many shades of colour and are better adapted for filling up with than the improved forms of Viola. Take advantage of a dry day for looking over the beds of Pink and Carnations, press them firmly into the ground, remove weeds and damaged leaves and top-dress with fresh loam, leaf-mould, and sand. Complete the planting of Ranunculus and Anemones. Pot Tigrisias and early flowering Gladiolus six or eight in 6-in. pots, place them in a cold frame, and cover with leaf-mould or spent tan until the pots are well filled with roots. Proceed with the re-arrangement of Phloxes, Pyrethrums, Larkspurs, and all popular hardy plants which are usually grown for cutting purposes; mulch with good rotten manure. Set traps for slugs, and afterwards dust about the stools with a mixture of quick-lime and soot. Where the propagation of tender plants for the summer display has been deferred until the full complement of cuttings can be taken at once, much time and trouble will have been saved. Moreover, strong healthy cuttings struck early in March and grown on without a check always make the best plants for turning out in May. Take cuttings, and last of all split up the roots of Dahlias, blue Salvias, and herbaceous Lobelias; pot singly and give them a little bottom heat. The single Dahlias Paragon, coccinea, and lutea should be grown in quantity. The first, a tall-growing variety, does best when pegged down. Variegated Geraniums cut back in January, also autumn-struck cuttings wintered in boxes, may be potted and placed near the glass in a warm house. A newly started Vinery will be found an excellent place for them. Mentha and Sedum lydium may be increased to any extent by constant division of the tufts. In damp or confined gardens the Sedum answers better than the Mint, and is less liable to perish in the autumn.

Pleasure Grounds.—In many places where formality is tolerated, the periodical trimming of evergreens is taken in hand about this time, but after so severe an onslaught, 4° below zero at this place, this work will be better left in abeyance until the March winds show the extent of the damage sustained, and then a sparing use of the knife will leave hardy shrubs in the most pleasing form to the eye of taste and refinement. Where the re-arrangement of the shrubbery was left incomplete in the autumn, April will be the best time for lifting and regulating evergreens, but the transplanting and pruning of deciduous trees should be brought to a close before the end of this month. Roses will hardly come under this head; and as many of the Hybrid Perpetuals, and perhaps all the Teas, have been more or less damaged, pruning must stand over until the sap begins to rise, when fortunate will be the owner of a good collection of plants on their own roots.

Plant Houses.—For early autumn flowering, Begonias, Gloxinias, and Cyclamens should be pricked off and kept in heat as soon as they can be handled. Euphorbias, Luculias, and plants of this kind which grow so well through the summer months in an intermediate and somewhat shady pit will require potting on in light peaty soil when rooted. A few Poinsettias may be cut down for giving young growths, and the ripe wood, if wanted, may be cut into eyes for propagation. Two popular plants, the Gardenia and Eucharis, which are subject to the attacks of many insects, should be thoroughly cleansed before the flowers become too far advanced. The power of paraffin and the mode of applying it being so well understood, we have only to advise caution. If seeds of a good strain of Cineraria can be obtained, a sowing made at the end of this month will give fine plants for flowering early in the winter. Suckers from good named kinds, although less free than seedlings, are also worthy of attention, as space and labour devoted to plants of good quality never end in disappointment. Cuttings of Chrysanthemums when rooted should be potted on before they become cramped. For cutting, decided colours are most appreciated, and the improved forms of the Japanese section are always acceptable. Take cuttings of Bouvardias as they can be got from cut-back plants. Shake out the latter, repot, and keep them near the glass in a close pit. Prune Camellias

into shape that have flowered, and repot, or reduce and repot, in good compost, consisting of light, turfy loam, peat, charcoal, and silver sand. Syringe daily, and keep in a warm house. Stop Fuchsias and Pelargoniums for late flowering. Keep them close to the glass; pot and tie out as they require it. Early plants set with bloom will take good supplies of clear liquid manure.

Cold Frames.—After so much close confinement through the frost, the many interesting plants in these structures will require a general turn over to free them from decaying leaves and weeds. Stir the surface soil, and shift plants that are likely to suffer from confinement in very small pots, using good drainage, light rich soil, which make very firm, and avoid over-potting. Primulas Auriculas, Pinks, Carnations, Phloxes, and Hollyhocks come under the above treatment. Keep rather close, and water sparingly for a little time after potting; gradually inure to free ventilation, and throw off the lights for a few hours on fine days when re-established. Put in cuttings of Tree Carnations; side shoots strike freely in a close frame with a little bottom heat. Phloxes, Pentstemons, and Hollyhocks may be propagated as cuttings can be obtained. Place them singly in small pots, and keep close until rooted.

Vines.—With all the houses, the latest excepted, at work, the Grape grower has a busy time before him, and he will do well to keep every operation well in hand, as delay in stopping the shoots or thinning the bunches is sure to tell upon the crop when passing through the finishing stage. In the early house guard against over-cropping; choose compact, medium-sized bunches, and thin freely or otherwise according to the kind and size to which the bunches usually swell. Lay in as many growths from the first stopping as will produce an even canopy of fully exposed foliage, and keep the sap in motion by training the leaders down the back walls without stopping them until the fruit is stoned. Succession houses, containing mixed kinds, will require a repetition of the treatment recommended for the early crop until the buds are fairly on the move, when the rapidly increasing amount of light and the invigorating influence of approaching spring will justify a corresponding increase in the temperature night and day. Look well to the shy-setting kinds, and see that failure does not follow neglected fertilisation, as some of our finest Grapes are worthless where this effective operation is overlooked. For artificial impregnation the pollen of the Hamburgh is best, and as it may be kept for some time in a thoroughly dry, warm place, a supply should be secured for the Muscats when in flower.

Late Houses.—To have the Grapes in these really good and capable of keeping fresh and plump until late in the following spring, they should be quite ripe by the end of September or early in October, and the most economical way to success is the early application of gentle fire-heat, aided by the introduction of fermenting material, in preference to trusting to our uncertain summers and having to fire in the autumn, when jubilant spider will assist the ripening of the foliage in advance of the fruit. Lady Downes, Mrs. Pince's Muscat, Charlesworth Tokay, Black Morocco, and we may now safely add Alnwick Seedling, enjoy and are so much improved by being grown in a temperature a few degrees higher than is needed for Hamburghs, that we cannot refrain from advising all who have been hitherto dissatisfied with the quality of any of these Grapes to take time by the forelock, economise their coal bills, and set unfavourable seasons at defiance.

Pot Vines carrying full crops of fruit will take liberal supplies of warm liquid of a thoroughly stimulating nature. If permanently placed on pedestals of dry bricks, surrounded by fermenting material, the roots will descend the dark, warm crevices, and be nourished by the ammonia. The foliage, which should cover the trellis, will remain stout and insect-proof, and the fruit will attain the finest size and quality. Pot cut-back Vines as they require it, replunge in bottom heat, syringe well, and give sufficient fire-heat to admit of moderate ventilation.

Orchard House.—When the fruit on Peaches and Nectarines is well set, the disbudding of the trees, and, in many cases, the shortening back of the shoots where left their full length, may be proceeded with. It is not a good plan to remove many of the young growths at one time; but by rubbing off a few, and stopping others, the sap may be forced into the weak growths near the bottoms of the trees. If well fumigated before the trees come into flower, it is possible they may be free from aphid, but the curled and crumpled appearance of the young leaves and decaying flowers soon reveal its presence, and I know nothing more tantalising than an outbreak of fly before it is safe to fumigate. Where this state of things does exist, the first smoking should be sufficient to stupefy the insects, and careful syringing the following morning will soon remove them. Watering, at all times the most important operation in pot culture, must have unceasing attention, and the daily syringing and damping must not be neglected. Always use the water a few degrees warmer than the house, and in sufficient

quantity to moisten every part of the soil. The temperature may range from 55° to 58° at night to 60° to 65° by day, or more with sun-heat and ventilation; but forcing must be regulated by the weather, and the temperatures by night and day must rise and fall with that of the external air.—W. COLEMAN.

THE FRUIT GARDEN.

SCRAPING VINES.

THE injurious effects that this practice has, when carried further than removing such of the outer bark as is loose, have often been urged, but it is so difficult to unlearn that, despite all which has been said against such barbarous treatment, it still is followed by not a few cultivators. The fact that Vines which have from the first been subjected to annual scraping never increase in thickness as others not so treated do, might have been supposed to be enough in itself to condemn the practice; yet such is far from being the case. Only last year I saw one of the worst instances of permanent injury that has ever come under my observation; it was at a place where there are four large Vineries, planted about eight years since, the whole in as good, healthy condition and as strong as Vines could be. A young hand obtained charge of them during the latter part of the summer, and in due course they were pruned and the scraping commenced. Two out of the four houses had been got through, and so much of the old bark scraped away that the live bark was perceptible in little patches over a considerable portion of the Vines, which were then dressed over with the usual clay, soot, and sulphur paint. At this juncture a friend suggested that it would be better to dress the remainder without scraping, and it was well that the advice was followed, for those that had been operated upon were so much injured that in some places two or three spurs together never broke at all, and the eyes that did push were very weak, the crop collectively not being more than half of what it should have been.

The case was one of the many that happen of going too far in the endeavour to get rid of a harbour for red spider, but which I think is so far a mistake that I never could see any difference the year following in the appearance of the pest on Vines, which I purposely subjected to a removal of some of their outer bark before dressing, and others that were dressed without the bark being touched. This scraping process has been long enough condemned by the generality of Grape growers of repute; still, there are numbers of gardeners who still adhere to it under the impression that they will be less troubled with insects the ensuing year, but even when the Vines were affected with mealy-bug I have got rid of it with careful dressing without any removal of the bark, except that which was in loose strings. And the sooner the ability to cope with this worst of insect pests without interference with the covering which Nature intended as a protection, even after it had lost its vitality, is realised, the better it will be for Grape growing.

T. B.

Wrongly-planned Fruit Houses.—I just wish to say, in reference to this matter, that Mr. Prior (p. 189) seems to have forgotten the original purport of this discussion. The dispute was not as to whether his Peach trees would produce fruit or wood which he might call "good," but related to the comparative merits of the cross-trellis system; and Mr. Prior has certainly failed to prove by his examples of wood, which were bad, that his Peach houses are well adapted to their purpose; and I imagine those who support his views would place themselves in a similar position if they would be as candid as he has been. It is a pernicious doctrine that teaches that it is not necessary for Peach shoots to be strong, brown, and hard in order to produce good fruit.—J. S. W.

Protecting Wall Trees.—The season for applying protection to Peaches and Nectarines and other early-flowering wall trees being close at hand, I can strongly recommend an excellent material made at Porthleven, in Cornwall. It is 8 ft. 4 in. in width, and of any length the purchaser may require. It is extremely strong, and being a close-meshed woollen material, keeps off a good deal of frost; and it is equally effective in keeping wasps or flies from the fruit in autumn. For houses, too, I find it excellent, either against excessive sunshine or cold. But its especial value now is to protect the tender blossoms of fruit trees from spring frosts, and the way in which we use it is to make a temporary framework over the trees, reaching from the ground to the coping boards to which the netting is nailed. It may be left on for several days if the weather is frosty, but being of width sufficient to protect almost any walls in one piece, it gives but little trouble to fix it or take it off. It is made of various qualities, from 1s. to 2s. 6d. per yard; but I find the medium, No. 3, at 1s. 2d. per yard, a most useful article, and not only one of the cheapest, but, as I have said, the most efficient shadings and protectors I have yet met with.—G.

The Parnell Peach.—The name of Parnell, says the *Gardeners' Chronicle*, at the present time is not universally associated with agreeable ideas, but there is a Peach, it seems, bearing the name which is described to us as a "mighty good Peach." It was raised, we learn, in Alabama by a son of the Irish M.P., and the name originally proposed for the fruit was "Home Rule." Many people will think they have heard enough of Parnell; but that will not prevent the Peach which bears his name from obtaining an appreciable reception at home or abroad. [We were not before aware that Mr. Parnell, the Irish M.P., was the happy father of a son or indeed, that he was even a Benedict.—*Gardeners' Record*.]

Grafting and Bearing.—The editor of the *Prairie Farmer* says that he has grafted thousands of trees with scions cut from bearing trees, and other thousands with grafts cut from young nursery trees, and that when planted in orchards there was no difference in bearing, or in any other way. This is in accordance with strict theory, for the character of a variety is not to be changed by growing a few years longer on one tree than on another.

Fruit Trees in Bohemia.—According to recently published statistics, the number of fruit trees in Bohemia of all sorts, but chiefly Apples, appears to be 14,000,000. Of these 10,000,000 are in gardens, 1,600,000 in waste lands, and about 2,000,000 on the sides of the public roads. The number of young trees annually planted is about 1,500,000. Between 6000 and 7000 miles of road are planted with fruit trees, mostly of the best sorts, and the revenue therefrom is very large. The fruit is largely exported to the north of Germany and Russia.—*Journal of Applied Science*.

LATE NOTES AND QUESTIONS.

Pea Beetle.—J. H.—Your *American Wonder Peas* are attacked by a small beetle (*Bruchus pisi*). The specimens in the Peas forwarded were dead; if you have any alive destroy them at once. The beetles are in themselves harmless, but they lay their eggs in the Peas, the grubs from which spoil and undergo their transformations within the Pea. If any of your Peas have a spot on them rather less opaque in colour than the rest of the Pea destroy them, as they are certain to contain these insects.—G. S. S.

Primulas.—P. Davidson.—The flowers you sent represent a very fine strain with much perpetuation. From thirty to forty blooms on plants in 6 in. pots are in bud, at you justly observe, good results.

Laburnum Seeds.—Sub.—They will in all probability produce plants with flowers like the common Laburnum.

Angrecum.—There is a chapter on raising seedling Orchids in Williams' book.

Quilled Asters.—P. O. O.—Mr. Betteridge, Chipping Norton.

Names of Plants.—A. K.—*Asparagus virgatus* (Baker), figured in Saunders' "Refugium."—W. E. B.—*Azalea*, one out of many forms of Lindley's *Azalea amica*.—W. M. A.—*Fuchsia procumbens*.—D.—Next week.

Renovating Grass.—How can I get Grass to grow well? I have a plot at both back and front of my house, and I have sown seed four or five times. It is now green, but all weeds or Scotch Grass. The ground is very poor. Should it be manured? must it be again dug up? and what is the best seed to sow? I want it fine and thick, but dread digging it up again. I should be extremely obliged for any information anyone could give me on the subject.—F. C. M.

Violets.—Will any readers of THE GARDEN kindly give me some hints as to the growing of these. I should like to know what are the best kinds for frames, and what is the proper time for planting them, so that they may blossom in the autumn and winter. Also the proper time for removing the runners of those grown in the open air. What soil and position suits them best?—L.

Eucharis amazonica.—I have had a plant of this for over a year, which I have failed in getting to blossom. It was kept in a stove house, and then removed for some time to a cool Vinery, during which time it got comparatively little water. On being returned to the stove I expected it would have blossomed, but such was not the case. I shall be glad if anyone can explain the reason of my failure.—L.

Lighting Conservatories.—Is there any method of lighting a small lean-to conservatory with gas without damaging the plants? I am obliged to put my lamps outside, and in rough windy nights am forced to leave them unlighted, or see the flame dart up to the edge of the chimney glass.—AN OLD SUBSCRIBER.

Propagating Conifers.—What is the best way to propagate such Conifers as variegated *Retinosporas*, *Thuja*, *Cupressus*, *Junipers*, *Wellingtonias*, and *Yews*? If by cuttings, when should they be taken and how treated? and if by grafting, in what book will I learn most fully how to proceed? How long approximately would cuttings take to make plants fit for winter decoration?—C. K.

Blood Dressing for Vines.—How should I apply this to a border of several years standing? In one house the Vines will be in flower in a few days. In the second they are just breaking. Please state the best time to apply the dressing and the best way.—CONSTANT READER.

Market Gardening.—Can anyone give me an idea as to what income could be procured yearly from five acres of land as market garden? The soil is deep loam on limestone.—A BEGINNER.

Violets in Pots.—I wish to have some pots of Violets next year. How should I obtain them? Would putting pots under the runners from old plants and so striking them answer? and if so, how should I proceed.—H. J. W.

Chrysanthemums.—To have these in flower in November, when should I pinch for the last time?—A SUBSCRIBER.

Grape Mrs. Pearson.—Can any reader of the GARDEN inform me if this white Grape is a free setter and good bearer, and if it should be planted in the early or the late vinery?—S.

Mould and Insects.—Kindly state the plants you are growing in the pans, without which an answer cannot well be given.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

VIOLETS THE YEAR ROUND.

IN reply to "L." (p. 220) allow me to say that the best sorts of Violets for frames are the Neapolitan, a pale lavender deliciously scented variety, and Marie Louise, a dark lavender; but the double dark blues and single blues, such as the Czar, flower all the better for the protection of a frame in midwinter if such can be spared for them. They all flower best treated as follows: In April take off sturdy side shoots with single crowns and plant them in lines 1 ft. apart each way on tolerably stiff soil, if possible, in a position shaded from the mid-day sun. Keep them moist by copious waterings and syringings in hot weather, and as the runners appear cut them off close with a pair of scissors. They will make fine sturdy clumps by the end of September when they must be carefully lifted with good balls of earth and replanted in frames fully exposed to the sun by raising them well up at the back. Ventilate freely, and cover securely from frost, and you will have no cause to complain as to results. I may mention that the Neapolitan is a tender Violet and useless for out-door culture; Marie Louise is, I believe, much hardier.

J. G.

For Frame Work, few Violets so well repay any trouble taken with them as the double Neapolitan. Early in April I select good strong healthy stools from plants in our earliest frames that have, of course, done flowering, bring them to the potting bench, and divide them into single crowns after shaking all earth from them, taking care, if possible, that each crown is left with some portion of the old roots attached to it. After having selected the strongest, and having enough and to spare for filling a frame when planted out, I put into 3-in. pots a single crown in a light, rich compost of loam, well rotted hotbed manure, a very little leaf-soil, and a good sprinkling of sand. After potting all get a good soaking of water, and then they are placed in a cold frame on ashes sufficiently thick to bring the plants up near the glass; they are kept close for a few days and shaded, and when started into growth they are given plenty of air. When well established they are plunged in the ashes, and get attention as to watering and removal of all runners that may make their appearance. As the season advances the lights are altogether removed, and also the frame, if required for other purposes. In June I get ready the frame from which the earliest flowers are to be gathered, and in this they are planted out. Such frames are prepared thus: I excavate a pit, say 2½ ft. deep, the size of the frame, whether it consists of two, three, or four lights. In each corner I place good strong, rough Oak posts, and lay on these a strong piece of sawn Oak (or other timber, but Oak is best) 7 in. wide by 2½ in. thick; this is made level from post to post, allowing a fall of 2 in. from the back posts to those in the front. Then between the corner posts I put intermediate ones afterwards, so as to strengthen the skeleton frame, on which I place the frames or frame in which the plants are to be planted. The next thing I do is to have pieces of wood (Oak is best, or, in absence of Oak, any other good timber) either sawn 2½ in. square, or round and straight, as they come from the wood. These I saw to the width of the frame crossways, and rest them on the wall plate described on which the frame is set. I keep these cross pieces 1 in. apart, and after I have got them into position I place about 3 in. of clinkers or brick rubble over them for drainage, some half rotted, longish, hot-bed manure broken up, and over that a layer of half rotted hot-bed manure, mixed before using it with a good sprinkling of coarse sand and pebbles. I then put in about 9 in. in depth of the following mixture, viz.: good sound fresh loam and manure three years old, a very little leaf soil and plenty of sand, a rich mixture, filling up to within 3 in. or 4 in. of the glass. This I allow to lie and settle for a few days, putting on the lights to get it warmed. I then select my plants, that are in the 3-in. pots, and plant the strongest out at from 8 in. to 9 in. apart every way. On these I place the lights and keep them shaded, giving a little air during the daytime. I water copiously when they require it. When they get established and are growing freely the lights are left off day and night, all runners are removed,

and nothing more is needed till September, when three sides (the front and the two ends) are closely boarded and nailed to the posts. For the back one can either have two-half shutters or a whole one, which is portable. Having prepared a heap of stable manure well fermented, turned and sweet, I put this under the frame, making it firm with a heavy stick or rammer, till all is filled up. Then I replace the back shutter or shutters to confine all heat inside, apply the lights, and tilt according to the state of the weather. I now give anything required in the way of weak liquid manure, and in a short time every plant bristles with glorious buds. I always keep a heap of stable manure fermenting to replace that under the frame which in time gets exhausted. In November, December, and January there will be gathering after gathering of the most glorious flowers, which, if all succeeds as it ought to do, will be nearly as large as a two-shilling piece.

For Later Flowers, set a frame on a bed of ashes and bottom it with any rough material at hand, filling up as before advised, and with the same compost, to within 3 in. or 4 in. of the glass. Let all settle for a few days; then select plants from pots and plant as already described, paying attention to the giving of air and water and the removal of all runners. From these, occasional pickings can be had, when the weather is mild, in February and through March, and up to the end of April they will be loaded with bloom. I make two pottings of crowns, if possible both in April, and when all the frames are planted, from those remaining in the pots I select 2 or 3 doz., which are shifted into 6-in. pots, set in a frame till started, and then plunged out of the frame into ashes. If the autumn becomes very wet, as it generally does here, they are again put into the frame and set on shelves in glass houses in October. These we find very useful for vases.

For Open Borders I use chiefly the Czar, and sometimes I put out a few Neapolitans. My plan with out door plants is as follows: After blooming is over in the end of March or the beginning of April, I take up selected stools, which are treated as already described, by dividing them into single strong crowns, leaving as much root attached to each as I can. These are then planted in a border or borders in which vegetables have been grown and for which manure has been plentifully dug in. They are planted in lines across the border, 18 in. apart and 9 in. asunder in the line. I do not dig the border over and then plant with a trowel; my plan is to make an opening at one end, which is barrowed to the other end; I then dig and turn the soil forward till 18 in. have been dug; then I apply the line and cut a deep notch, against which I place the young plants, planting low in order that the crown or heart may be on a level with the top of the border when finished. In this notch I place any material at hand, such as clearings of the potting shed, old Cucumbers, burnt ashes (I burn all weeds), some coal ashes—in fact, anything that I think will prove useful for the purpose. This is kept in a wheelbarrow at the side of the border and used as the plants are laid in. I then dig to the proper width between the lines and again cut a notch for the plants and so on till all are planted. I pot off or put into a nurse bed a few plants such as those lined out for lifting to replace any that may by accident die; but this seldom occurs; I remove all runners as they appear, and Neapolitans receive the same treatment as the Czars. I begin picking flowers in the first week of September at the rate of forty bunches a week up till November, when they get scarce, but they furnish pickings—say eight and nine bunches weekly—up to March, when I have picked 180 bunches in one day, and still leave plenty of flowers. All who have seen my Violet flowers and who get them say they never saw larger blooms. Neapolitans yield good pickings up to June.

J. LAIDLEY.

Bessborough, Ireland.

Violets in Pots.—To grow Violets in pots successfully requires no small amount of care and attention, but when well done they well repay any extra pains that may have been taken with them. I have found the following plan to not only give me the finest blooms, but the best succession. Procure in May some young plants, runners of the previous year, plant as many as you require in pots on a sunny sheltered piece of ground, well prepared and with 3 in. or 4 in. of leaf soil worked in the surface; the plants should be 18 in. apart all ways; they will require attention as regards water, and should be syringed every evening in hot dry weather. When they become established in their new quarters, they will throw out a number of runners, which should be thinned out to five on each plant, leaving the strongest; these should be potted

equidistantly round the parent plant, and all attempts to push fresh runners should be immediately stopped. The soil should be occasionally stirred and freed of weeds, which will result in having by the middle of September fine healthy plants. They should then be potted up in 9½-in. or 8-in. pots, using equal portions of peat and leaf soil, and placing the rooted runners undetached in a position similar to that which they occupied in the bed. Place the pots in a partially shady situation until they get over the shift. By the middle of October, or as soon as sufficient leaves can be collected, make up a bed for them, and place a one, two, or three-light frame upon it, plunging the pots within 6 in. of the glass. This plan will not fail to give a succession of fine blooms from November to the following April. The frame should be well matted up in frosty weather. J. HOPKINS.

—“L’s” enquiry “how to cultivate and when to plant in frames so as to gather in autumn and winter,” shows that though a good deal has been written about Violets in *THE GARDEN*, there are still readers who want to know more about them. Nor is this to be wondered at, for what flowers are so sweet or so full of sentiment as the Violet? They are also everybody’s flower, and everybody may grow them. “L.” asks about soil and position. Violets are not at all particular about soil. A light, rich loam suits them best, probably, but any fair kitchen garden soil suits them well, and an eastern or western border in the kitchen garden is the best site on which to grow Violets for forcing. For flowering late in the season a north border is the best. The finest Violets I have ever had or seen have been grown on such borders in the kitchen garden. Violets may follow Peas, Lettuces, Cauliflowers, or such crops. It would not be wise to succeed Onions, Leeks, nor Shallots with Violets, as following on the heels of such crops would probably lessen or mar their fragrance. The land should be in good plight, as it is not good practice to manure for Violets. As to the time to take and plant runners, the earlier the better. There is no exception to this advice. Hence those who force or foster Violets in frames obtain their runners from the plants grown under glass. This gives them a start of a month or two over those who grow Violets only in the open. The runners may either be allowed to root on the old plants, or removed and placed in sandy soil in close frames. The simplest and, on the whole, the best plan is to top-dress the old plants when the runners are about half grown with 1 in. or 2 in. of light soil, say half rotten leaf-mould and sand. They will root as if by magic in such tempting material. As soon as rooted they should be planted out in rows 1 ft. apart, and 6 in. or 9 in. from plant to plant. “L.” asks the proper time to remove runners from Violets grown in the open air—let us say runners from old plants. In regard to runners, not a vestige of one should be allowed to grow on the young plants. Such Violets as the Neapolitan and Marie Louise have a wonderful tendency to develop into a tuft of runners rather than concentrate their forces into one crown. This tendency must be rigorously checked if a crop of flowers is to be gathered in the autumn or winter. This rigorous suppression of runners through the summer, the keeping of the plants free of weeds and sufficiently moist in dry weather is all the culture they need throughout the summer. On no account should Violets be allowed to flag or suffer from lack of water. This causes them to lose strength and to produce a double crop of red spider and thrips—absolute ruin to Violets. But the question of the removal of runners may refer to old plants; if so, it shows that “L.” has not yet learned the rudiments of true Violet culture. This may be described in a nutshell—the destruction of all the old plants and the rearing of a fresh crop from runners annually; therefore as soon, or rather before the Violets have finished flowering, proceed to root, and remove the layers exactly as already described for frame plants. When a sufficient stock of runners are secured, destroy or rather plant in the shrubberies, woods, hedgerows, or roadsides all the old Violets. With a slight dressing of manure or fresh soil dug into the old Violet bank or border, the new runners may be planted on it again and again with equal success, though of course the Violets may do even better in fresh quarters. A change of site is, however, by no means indispensable, though a renewal is, to the highest success in Violet growing. Returning again to “L’s” question, October is about the best month for the removal of the compact Violet plants, with fat plump crowns full of embryo blossoms, from the open air to frames. The frame may be filled with early fallen leaves trodden firmly down to yield a gentle heat without risk of heating too fast, or sinking too far.

On these from 4 in. to 6 in. of light loam and leaf mould should be placed. Remove the Violets from the outside border with a spade or a trowel, keeping the balls of roots and earth intact. Plant them firmly in the loam, with their tufts of leaves almost, but not quite touching each other. Those who have ample space plant Violets so that they can surround each plant with a dry bed of sand or charcoal dust to prevent damp—a great enemy to Violets in frames in November. But with care plants may be placed pretty closely together, as they will grow no more until they have flowered. The frame should face south, and the bank of Violets have a sharp inclination in the same direction. This enables them to catch every ray of the winter sun, the most potent power after all in opening the Violets already existing in embryo in the well filled crowns. Water the plants home, and give no more water unless they really become dry. As a rule the earlier crops of Violets will need no more water. The damp earth will keep them sufficiently moist, and the moisture of the soil should be prevented from escaping into the air by a dry mulch of Cocoa-fibre refuse, coal ashes, tan, or some such slow conductor. Give all the air possible and draw the lights off at every favourable change in the weather when the thermometer exceeds 45°. But on no account allow rain or dews to fall upon the Violets during the winter months. In frosty weather cover the frame carefully with mats, using double mats with a straw lining between them when the frost is severe. A little air should also be left on the frame to prevent any accumulation of damp or a stagnant atmosphere. A small snap under the light is the best for giving the needful amount of air. As to varieties, I know of none superior to the old Neapolitan, Marie Louise, the double Russian, and the Victoria Regina. The Czar is not equal to the latter, and its leaves are too large and too long for frames. D. T. FISH.

GARDEN THOUGHTS.

THERE is a charming sketch by John Leech of “the only parties who enjoyed the rain”—two young lovers, manifestly “engaged,” in the rumble of a carriage, under a huge umbrella. Mr. Groom sends me from Linton some pretty posies of the only flowers which enjoyed the snowstorm—Snowdrops and Aconites; and I would venture to suggest to those readers of *THE GARDEN* who might beautify many a vacant space on banks and borders in shrubberies, plantations, and elsewhere with these hardy blossoms, that they should act upon the wise hint which the donor sends with his gift: “If we are to get that full enjoyment from our gardens which we might and ought to have, we must give more attention to plants like these, which can not only live, but thrive and flourish in our ever-changing climate.” What a change might be made, and at how small a cost, from gloom to brightness, starved nakedness to warm and cheerful raiments, to cloth of silver and gold by introducing here and there a few hundreds of these winter flowers!

The same post which brings me these hardy flowers from Kent brings me testimony from the other end of England, from the bleak coast of Durham, where “the wind blowing in from the sea” cuts like a razor, as to the happy resurrection of other precious, but too much neglected plants. In that part of the county palatine, anciently called Werewickshire, the winter has been more protracted and severe than either of its predecessors, and the poor birds have been so destitute of food that even a woodcock came to the feeding place, the soup kitchen, instituted and supplied by the children of my correspondent, and might have been captured almost any morning. Nevertheless, he writes, a pleasant surprise awaited me when the gradual thaw had partially cleared away the greater part of our drifted snow. Several of our Primroses were in flower under the snow, and there they were like real gems when their cotton wool packing was taken off them. Again, he tells me of another pleasant sight, which I respectfully, but earnestly commend to the consideration of

my clerical brothers, and which he saw when attending the burial of a relative in the grave-ground of the old church of Chester-le-Street—an immense clump of Christmas Roses peeping through the half melted snow—beautiful emblems for the mourner's comfort of an everlasting spring.

And when shall we have, from the same noble, unselfish, missionary love, which founded the Kyrle Society, which instituted the exhibitions of window plants, and which rejoices to impart to others its happiness in the beautiful, an organised attempt to clothe the waste places of the land, to give the garment of praise for the spirit of heaviness? It should begin with the gardens of the poor, not discouraged by failures, of which I know something from experience; not discouraged like those kind Europeans, who, having made and furnished a house for some savages, returned to find them, living very happily, outside of it, round a bonfire of chairs and tables; but in the sure confidence that some would appreciate and turn such bounty to account. It should distribute the best kinds of fruit-trees and vegetables, supplied with these on the liberal terms which our nurserymen and seedsmen have always offered for such benevolent endeavours. It should offer trees and flowers for churchyards and cemeteries. It should encourage those "brethren" on the rail, who not only make their homes brighter for themselves, but bring out the heads of travellers from the train, wearing a happy smile of refreshment. Even to read "Orpington," largely traced in the white flints of Kent upon the brown earth by the station, excites our interest and relieves our monotony; how much prettier it would be in flowers! How much prettier still a garden always with something bright for every season! Prizes might be awarded yearly for the most pleasing specimens of horticulture along the different lines. The embankments might be ornamented or utilised by trees, shrubs, flowers, or fruits. The idea may not be new, but the reality would be, and if the egg is good it should be incubated and hatched into life. Of course, there would be refusals, opposition, peculation, damage, but a few successes would be ample recompense.

A traveller on a dusty road strewed acorns on the lea,
And when he'd gone one sprouted up, and grew into a tree.
The happy children play'd around, love breathed its earnest vows,
And age was pleased at heat of noon to bask beneath its boughs.
It stood a glory in its place, a blessing evermore!

Kind correspondents, known and unknown, have sent me such copious additions to my list of the synonyms which exist between the floral and animal worlds, that, interesting as they are to the botanist and zoologist, who have the desire and the power to train and verify the similitudes, they would occupy a larger space than would be approved by the general readers of THE GARDEN. For myself, I have read them with a real happiness, because so many of those old names take us back to the dear old times and places! To

The young day, when first our infant hands
Plucked, witless, the wild flowers.

To the old pools where we plaited the Bulrush into whiptongs, cut our stocks from the adjoining Willows, and drove our brothers and sisters in a light harness of string and curtain rings, four in hand, to the banks of the Dog Violet and the Cuckoo Pint, with its cows and calves; to the fields, where we blew the down from the Dandelion (Dent de lion, from the similarity between leaf and tooth);

And we did question of the down-balls, blowing
To know if some slight wish would come to pass;
If storms we feared, we sought where there were blowing
Some meadow flower, which was our weather glass—

such, for instance, as the Scarlet Pimpernel, which on the approach of rain allies itself with the early-closing association,

and does not open at all in seasons of rain or damp; to the Cowslips which carpeted the poorer soils, and which made those golden balls; to the lanes which, before the severities of high farming swept away the great hedgerows, were bowers and avenues of the Dog Rose; to days when even the Sow Thistle was precious in our eyes, as welcome food to the large white doe, with her pink eyes and incessant progeny at home.

To other flowers, which, though not included in our zoological garden, we knew by quaint names and histories. The Forget-me-not, of which a voice, that has long been silent, but which will be forgotten never, told in the pretty legend how the lady, walking with her knightly lover by a stream, sighed for the bright blue flowers on the opposite bank; how the brave knight leapt into the water, and, returning with the posy, was overpowered by the current; how

The blossoms blue to the bank he threw
Ere he sank in the eddying tide;
And "Lady, I'm gone, thine own knight true—
Forget me not!" he cried.

All this, as a good and docile child, I believed implicitly; but I know a little boy, precociously depraved, who, hearing the same story from his nurse, audaciously remarked "that the knight must have been an awful duffer." Whereupon he was thus severely and unanswerably rebuked: "Master Percy, if you was to get into one of them suits of armour as is hanging in your pa's hall, and was to begin a swimming about in the Trent at flood time, you'd praps find as somebody else was a duffer. Then there was the pink Convolvulus, the old man's night cap; and who will tell us how it came to pass that this headgear, worn half a century ago by young and old, is now universally discarded? There was the Bairnwort, the Daisy, which babies are supposed to love; the Woundwort, Sicklewort, or Carpenter's Herb, which was a certain cure for cuts; the Soapwort, which produced a lather in hot water; there was the Shepherd's Needle, long and pointed, and the Shepherd's Purse with seeds for coin; and, sweetest name of all to our childhood's ear—Codlins and Cream!

A friend—"of Oxford he, a most egregious clerk" (not in Orders), reproves me, and bids me "stay in after school and be swished," because I substituted *prætereunt* for *diffugere* in my quotation concerning the thaw. But when I wrote the word, the snows were going, not gone, and I preferred a false quantity to a false statement. As when two rustics in the village ale-house contended for a quart of beer, offered by the schoolmaster to the one who should compose the best two lines of poetry. The first essay was as follows: "I, John Thomas Mellor, kissed your sister Bella;" whereupon, his adversary instantly and indignantly responded—"I, Peter Blatherwick, kissed your sweetheart." "That's no rhyme," said the rival. "No," it was answered, "but it's a fact; and truth's better nor poetry any day in the week."

A Devonshire lady asks me to incorporate with my "Garden Thoughts" the six garden Roses which I think the best for the pillars of a verandah, including those varieties of the Tea-scented. I recommend—Blair No. 2, H. C.; Charles Lawson, H. B.; Climbing Victor Verdier, H. P.; Maréchal Niel, T.; Climbing Devonensis, T.; Cheshunt Hybrid, T. The six best dwarf Roses for foot of trellis I recommend—Charles Lefebvre, H. P.; Duke of Edinburgh; Dupuy Jamain; La France; Middle Annie Wood; Marie Baumann. The eighteen best Roses for a border, including six Teas, and the darkest Rose known, I recommend—Alfred Colomb, H. P.; La France, H. P.; Paul Jamain, H. P.; Baroness Rothschild, H. P.; Louis Van Houtte (best dark), H. P.; Sénateur Vaisse, H. P.; Catherine Mermet, T.; Marie

Finger, H. P.; Souvenir de Malmaison, B.; Charles Lefebvre, H. P.; Marie Van Houtte, T.; Souvenir d'un Ami, T.; Devoniensis, T.; Madame Falcot, T.; Souvenir d'Elise, T.; Etienne Levet, H. P.; Marie Baumann, H. P.; Xavier Olibo, H. P. And the six best climbing Roses for a wall, I recommend—Banksian double yellow; Cheshunt Hybrid; Cloth of Gold; Climbing Devoniensis; Fortune's yellow; Maréchal Niel. I have more thoughts about Roses for a future paper. Meanwhile, will any of my brother rosarians oblige me by communicating the results, so far as they can ascertain them, of the recent severe weather upon their Rose trees?

S. R. H.

ORCHIDS.

CULTURE OF ORCHIDS.

It has been asked, Is the culture of Orchids easy? and I do not hesitate to reply that they are more easily grown than Auriculas or Carnations; most growers of hard-wooded plants, such as Heaths and other greenhouse plants, will, I believe, bear me out in the assertion that Orchids are easier to manage than they are; near large towns where the atmosphere is impure there are indeed no choice exotics better adapted for indoor culture than Orchids. The most desirable section is that which succeeds in a very cool temperature, amongst which are included many very beautiful genera such as the *Odontoglossums*, *Masdevallias*, &c. These may be grown well by any person having sufficient knowledge to grow any kind of pot plants. If properly potted it is impossible to overwater them; the aim should be to keep the *Sphagnum* growing on the surface of the pots. The atmospheric conditions necessary to do this just suits the Orchids. The requisite temperature and shading are matters of detail that are easily managed. I strongly advise the purchasing of newly imported plants in preference to established specimens, which have sometimes a tendency to become smaller; while small examples as they increase in size also increase in value. For instance, it is a common occurrence to see very moderate specimens of *Odontoglossum Alexandræ* sold at Stevens' rooms for five guineas a plant which might probably have been purchased at the same place two or three years previously for two and sixpence or five shillings.

All the cool-house species with scarcely an exception grow freely in pots or the shallow pans now being much used. An exception may be made in the case of *Cattleya citrina*, which produces its golden flowers annually when fixed to a portion of Tree Fern stem in an inverted position. *Cattleyas*, such as *C. Mossiæ*, *Warneri*, *Trianae*, *Mendeli*, &c., require rather more heat and attention, as regards watering, than some others, but both in the case of this section and in that of the many fine species requiring an East Indian temperature there are many that require treatment peculiar to themselves. And it is not uncommon to see certain species which have baffled the skill of the most famous Orchid growers doing famously in some garden where they have had no special treatment. Good cultivators, too, fail from want of knowledge of the special needs of the plants with which they are dealing, though the species may be one easily cultivated when properly understood. The following is a case in point: On one occasion I purchased six plants of *Cattleya superba*, in good condition, just imported; and the usual way with *Cattleyas* is to pot them in clean potsherds until roots are formed; then some of the usual compost is added. The plants of *C. superba* in question were treated in that way, but did not do well; they made no flowering growths, and in the course of two or three years four of them were dead. I happened just then to visit Mr. Rucker's collection at Wandsworth, and there was *C. superba* growing and flowering gloriously, on a bit of Tree Fern near the glass, in a warmer place than is usual for *Cattleyas*. The day following our two remaining plants were shaken out of their pots and fixed on Tree Ferns; they grew away at once, and have flowered every year since. Last season the strongest plant flowered twice. Now, I am able to say that this splendid *Cattleya* is easily grown. The Fern stump is sprinkled daily, in fact kept moist. Ferns of different sorts make their homes on the old stumps, and also varieties of Mosses; amongst them the fleshy roots of the *Cattleya* find a congenial pasturage. It requires some patience before the right place can be found for *Vanda cœrulea*, but when once found the after treatment is simple enough. These peculiarities are, however, as common amongst herbaceous and alpine plants as amongst Orchids, and it is in overcoming such difficulties that a great part of the pleasure attending the cultivation of any particular plant is to be found.

J. DOUGLAS.

ORCHIDS IN FLOWER.

IN Mr. Peacock's garden at Hammersmith the Orchids even rival the famous collection of succulent plants, no fewer than a dozen houses being occupied exclusively by them. Among the more remarkable of those in flower we noticed the following: *Angræcum citratum*, a charming little species with narrow recurved leaves, and long arching spikes of creamy-white flowers arranged densely on one side of the spike. This is one of the most beautiful of the small growing *Angræcums*, and one which will become popular on account of its being easy to cultivate. It forms a striking contrast as regards size with its congener *A. sesquipedale*, of which there are several healthy, though not exceptionally large, specimens in flower. Of *Cattleyas* and *Lælias* there are many kinds in flower, the most noteworthy being the forms of *C. Trianae*, one named *Atalanta* being particularly fine. It has blush-tinted sepals and an intensely deep amaranth-tinted lip, margined with white, and exquisitely crisped. Another named *Bogotensis* with paler flowers was also conspicuous for its beauty. The fine lemon-yellow *C. citrina* is represented by the hundred, all healthy and promising to produce a good crop of flowers. The *Odontoglossum* house is gay with numerous forms of the popular *O. Alexandræ*, *O. Andersonianum*, *O. pardinum*, *O. gloriosum*, and *O. Rossi*, of which latter there are numerous varieties in flower, one especially being remarkable for the bright golden crest so conspicuous in the centre of the flower.

Among the *Dendrobiums* we saw for the first time the singular *D. brisbanense*, or *D. gracilicaule*, as it is more correctly called. It is not a showy kind, though its attenuated bulbs and terminal clusters of small yellowish blossoms, spotted on their exteriors with chocolate, renders it distinct from its compeers. *D. Freemani*, which seems to be a *D. lituiflorum*, is no doubt a first-rate kind, very showy, free in flower, and of easy culture. It does not appear to be common, but no one need hesitate to add such a beautiful variety to their collection. Among the many forms of *D. nobile* we observed one having unusually dark blossoms, the deepest we have seen, so distinct, in fact, as to merit a varietal name.

The rare *Masdevellia Backhousiana* was flourishing in suspended baskets, and two plants of it were producing several of their singular blossoms. Of other *Masdevallias*, the beautiful *M. ignea*, one of the best and certainly the freest flowering of all the species, was very showy. Of *Cymbidium eburneum* there will shortly be a fine display, as some half-hundred plants have productive flower buds. Mr. Croucher grows this Orchid well in a mixture of turfy peat and loam; formerly he grew it in a compost consisting chiefly of loam, but now he finds it to succeed best in an equal mixture of both. *Lycaste Skinneri* was represented by many varieties, one of which, *alba*, the pure white flowered kind, was the most noteworthy. Among the *Oncidiums* we observed a very remarkable one with an unusually long flower-stem, trained to and fro along the roof. It was labelled *O. Balderrama*, and has smallish flowers of a chocolate hue barred with yellow. The bulbs are flask-shaped and the leaves narrow and erect. *O. macranthum*, one of the handsomest of the genus, the almost perpetual flowering *O. Weltoni*, and the pretty little *O. cucullatum* were also finely in flower, as were likewise *O. Cavendishi*, which is grown well in a rather hot and moist atmosphere in company with *O. ampliatum*, grown very finely on hanging blocks.

***Angræcum citratum*.**—Among the many Orchids in flower in Messrs. Veitch and Sons' nursery at Chelsea few are more attractive than this charming little species, which was introduced by the firm some fifteen years ago from Madagascar. It is an epiphytic species with a few oblong lance-shaped leaves, from the axils of which are produced the long, slender, and slightly pendulous flower-spike. The flowers are creamy white, marked faintly in the centre with pale purple, and each has a spur about $\frac{1}{2}$ in. in length. The blossoms are arranged in two rows, and all face one way, and have an extremely pretty appearance. It is a free grower and also a free flowerer, as many small plants in suspended baskets have each produced from three to five flower-stems.

***Dendrobium lituiflorum* and *Freemani*.**—These two kinds are now among the most conspicuous in Mr. Bull's Orchid houses at Chelsea. Both are extremely beautiful, but differ only slightly from each other except that *D. Freemani* appears to have smaller blossoms. The form of the flower is similar to that of *D. nobile*, but the colours are far deeper, the dark purple blotch on the shell-like lip margined with white being very attractive. These two kinds may be recognised when not in flower by the slender pseudo-bulbs, which have a dark skin different from that of most other kinds.

Fine Growth of *Dendrobiums*.—Some of the finest examples we have ever seen of the old *D. Picardi* are in the gardens at Hatfield House, where the more showy and useful kinds in cultiva-

tion are all well grown. These Dendrobes are suspended in baskets as close to the roof as practicable, and have a surfacing of Sphagnum Moss, which is kept in sweet healthy condition. One pseudo-bulb we measured was 4 ft. 9 in. in length, and bore one hundred, or, to be more precise, ninety-nine flowers in various stages of expansion. Of *D. Wardianum* likewise we measured a growth 4 ft. 3 in. in length and of proportionate thickness. It was treated similarly to *D. Pierardii*.

Dendrobium Wardianum album.—Though the flowers of this variety are not pure white, they have but a blotch of yellow in the throat, the black spots and purple tint of the sepals of the type being quite absent. It is a very desirable kind, and quite as vigorous in growth as the original variety. Some flowering specimens of it may now be seen in the Royal Exotic Nursery, Chelsea.

Finely-flowered Dendrobium nobile.—A correspondent informs us that in the Hon. W. O. Stanley's garden at Penrhos, Holyhead, there is a plant of this Orchid, growing in a suspended basket, bearing 419 blooms, from 30 to 36 being on each pseudo-bulb.—W. G.

THE ROSE GARDEN.

PROTECTING ROSES.

ALL Roses must, for the future, I fear, be placed under covering material. It need not be heavy, and it must not be unsightly. If the Roses are single specimens on Grass, at wide distances apart, or in conspicuous positions near the house, where, by the way, they ought not to be, for they are not always beautiful, their heads should be neatly bound round with straw or Fern, and then over that should be put a slight coating of Spruce or Thuja twigs fastened over all for appearance sake. Nor should the stem be forgotten. Dwarf Roses on their own roots on the turf should be slightly cut back, tied loosely together, and have a neat cube of Oak or Chestnut leaves, about 1½ ft., built around them; on the top a square piece of green turf can be laid. Standards in beds and borders may have their heads buried about 1 ft. under the level of the bed. They require to be somewhat pruned back, and if straggling in growth they will need tying together with a Willow shoot. A hole should then be opened, and the head, after loosening the plant from the stake, should be gently bent downwards till it lies in it; it should then be made fast with a strong wooden hook, 1½ ft. in length, and the soil laid over it. Dwarfs in beds may have small pyramids of earth heaped up around them after being slightly cut back, or if standing too closely together to admit of that being done, they could be covered up in the same manner as dwarf Roses on the turf. Whatever mode of protection is adopted the ground should first be allowed to become slightly frozen, as under such conditions the trees would not be so much exposed to the ravages of mice, which commit great havoc amongst covered-up Roses in hard weather when food is scarce.

There is another advantage in allowing the earth about the roots to become frozen, and that is the plants are not so easily excited by a few days of mild weather during the winter, and they remain longer in a state of perfect rest than they otherwise would do. One should not believe too implicitly all that is too often repeated about keeping the soil warm and mellow about the roots of Roses. The plants rest most completely when the surrounding earth is at a low temperature, and Nature intends them so to be rested. To keep the roots warm while the head is exposed to all the vicissitudes of our northern winter cannot be a good practice; therefore I recommend the freezing of the ground first and protection afterwards. In all cases it will be advisable to bind up the stems, be they Dog Roses or others. Banksian and other tender Roses on walls are not unsightly when unfastened and covered with earth at the foot of the wall or fence. With Roses covered up in the earth care must be taken to provide metallic labelling of some kind, as wooden labels become illegible in one season.

SYLVESTRIS.

The Excretions of Roses.—Mr. D. T. Fish has made two curious mistakes in his notice on this subject; he evidently confounds Mr. Geo. Baker, of Reigate, with Mr. G. N. Baker, of Heavitree, Exeter, and he also quotes the article as if it appeared in the "Rose Annual," whereas it appeared in the "Rosarian's Year Book." Both the Messrs. Baker are excellent Rosarians, but Mr. Baker, of Exeter, is the celebrated exhibitor whose blooms so astonished Mr. Fish at Norwich.—DELTA.

MANURING ROSES.

Will any one kindly tell me when I must manure or mulch my Rose trees which were planted last October, and which were only given enough for their first wants?—M. J. L. [When the Roses were planted last October, in addition to the manure worked in with the soil, the top should have been mulched to the depth of 3 in. or 4 in.; this would have protected the lower wood from frost, and the soil would have received nourishment for the roots by the rain and snow washing in the most valuable parts of the manure. It is to be feared that many plants will be found seriously crippled by the severe winter where this mulching was not done before the bad weather set in. You had better put some manure round the trees at once, which can remain until the middle of next month, and after pruning it may be dug or forked in some 3 in. or 4 in. deep, taking care not to disturb the roots, which by that time will be getting active. If this mulching should not be considered an eyesore it may remain undisturbed throughout the summer, and if it should prove a hot one, the Roses will derive much benefit and support from the arrangement.]

I may add that all my Tea Roses are safe where the soil and manure protected the wood from frost, and that, although the long blooming wood was fully protected by straw, mats, netting, &c., these coverings were useless to keep out 30° of frost. It is evident that the earth drawn round the collar of a plant, or manure similarly placed before severe weather begins, is ample to make a plant perfectly secure, and where this was properly done I have no fear for this year's growth. The Hybrid Perpetuals are equally safe where similarly treated. As regards standards, many have gone off entirely; others will, perhaps, push at first and then dwindle away; the remainder may give some small blooms, and be an increasing anxiety next winter. The cost of standards will certainly be something alarming next season, as I find very many of the dormant buds quite dead. The loss to nurserymen will be great, and in fact to all who go in largely for this kind of Rose tree—the result of the past winter. Although protected by straw, moss, &c., the buds have turned quite black, showing the effect of the severe frosts we have experienced. Where the coverings were not properly secured the gales conveniently laid bare the buds for the frost to operate upon them, and no doubt many dormant buds on dwarfs were lost from the rough winds depriving the stock of the warmth of the snow, which fully protected all where it remained on the ground. I make these remarks upon the state of the stocks budded last summer not alone from my own limited quantity, but from a visit paid this week to my friend, Mr. Frettingham, at the Beeston Rose Nurseries, near Nottingham, where it was really grievous to see the havoc made with many sorts, and the proportion of stocks containing the bud truly, but, alas! quite dead.

It may, perhaps, be interesting to some to know the sorts of Roses which have suffered most in this neighbourhood, so I give a few of the worst, viz., Marie Baumann, Marie Rady, Prince Camille de Rohan, Souvenir de Spa, Duc de Rohan, Duc de Wellington, Monsieur E. Y. Teas, Madame C. Crapet, and in fact the thorny varieties seem to have had a bad time of it throughout. On the contrary, look at the smooth green-wooded kinds, for instance, John Hopper, Star of Waltham, Etienne Levet, Madame Victor Verdier, Mrs. Baker, Oxonian, Francois Michelon, and the like, and they are all quite safe. Perhaps I should take exception to the slaughter made among thorny sorts on behalf of Marquis de Castellane, who has braved the winter well, and come out quite healthy to all appearance. Generally speaking, the English raised Roses have proved themselves much more hardy than those sent out by the French raisers, and this fact should stimulate us to further progress in this respect, and, judging from the comparatively new sorts, viz., Countess of Rosebery, Duke of Connaught, Mrs. Laxton, Rosy Morn, and others, our English Rose raisers are to be congratulated on the improved constitution of the Roses they have from time to time given us. May they by-and-by give us others capable of thoroughly enduring such winters as the last three have been.

WILLIAM WALTERS.

Burton-on-Trent.

Trees on the Thames Embankment.—Although attention has been directed more than once during the past autumn to the condition of these trees, nothing has been done to relieve them by thinning their ranks. I observed last Saturday that two men had commenced pruning the small twiglets from the branches, which seemed a very inadequate, though tedious process. If one-half of the trees are not removed the branches must necessarily intermingle, as some have already done. A jocular correspondent of mine suggests, in the absence of any reason for not thinning the trees, that it must be intended to produce a new effect by pruning their tops into the form of a hedge uplifted on the stems, which will then appear as

pillars supporting a very unique, but objectless screen. But apart from joking, it is to be hoped that proper measures will be taken in time to save the Plane trees from the injury they must suffer if they are left much longer as they are at present.—W. B. S.

NOTES OF THE WEEK.

Netted-leaved Camellia (*C. reticulata*).—The grand old specimen of this which now occupies every inch of space in a deep two-light frame in the Royal Horticultural Society's garden at Chiswick is completely covered with flower-buds, which in a short time will be expanded. Such a profusion of large crimson blossoms is a welcome sight, especially to those who prefer the single to the double form of the Camellia. The plant under notice is probably one of the finest in the country, and it is to be regretted that such a beautiful shrub is becoming so scarce in cultivation, a circumstance doubtless owing to its being reputedly difficult to manage. The double form of this Camellia is also beautiful, the blossoms not being so much imbricated as in some of the new kinds, but more of the form of a large flowered Hybrid Perpetual Rose. It is now finely in flower in the Royal Exotic Nursery, Chelsea.

Two Good Begonias.—In the house devoted to these at Kew there are now two kinds in flower which we think would be found valuable for general cultivation. One is *B. pruinosa*, a species from Costa Rica, having large round or peltate leaves of a charming pale green colour. The flower-stems rise about 1 ft. high, and are terminated by clusters of white flowers, which though small are borne in such large numbers as to compensate for their small size; the other kind is *B. Verschaffelti*, a hybrid between *B. carolinifolia* and *B. manicata*. It is exactly intermediate between these two species, the leaves being angled, but not so deeply as in *B. carolinifolia*, and the flowers, which are produced much in the same manner as those of *B. manicata*, are of a delicate rose-pink hue, and borne in loose pendulous clusters on stout fleshy stems some 4 ft. in height.

New Maranta (*M. crocata*).—This new plant, recently introduced by Mr. Bull, from Colombia, is one of the most beautiful of all the Marantas in cultivation. It is of dwarf growth, not more than 9 in. high, and has oval leaves about 3 in. long, pale satiny green on the upper side, and of a claret hue on the under side. The flower-stems overtop the foliage, and are terminated by a dense cluster, 2 in. long, of bracts and flowers, the former being the most conspicuous, as they are large, concave in shape, and of a bright orange colour. The plant seems to be very floriferous, as we noticed on one small plant as many as six fully developed flower-spikes, and being of free growth and easily propagated it cannot fail to soon become a popular plant.

A Pretty Basket Plant (*Rhipsalis salicornioides*).—We noticed a few days since in Mr. Peacock's collection of succulents some suspended baskets furnished with this pretty Brazilian plant, and were much struck with its elegant appearance. The stems are much branched, and singularly divided into fleshy knots, those at the tips of the branches being furnished with an orange-red flower. The branches in the ordinary form of this plant are pendulous, and hang gracefully over the sides of the basket; but there is another variety, an upright growing kind named *stricta*, which is not suitable for this purpose. It succeeds well in a warm greenhouse planted in light, friable soil.

Hardy Cyclamens.—These charming little hardy flowers have braved the weather well, even while beset with flowers. On the rockery at Chiswick are some healthy tufts of *C. Coum*, with plain deep green leaves of roundish form, and *C. ibericum* with angular leaves mottled with white; both have pretty purplish-crimson flowers, produced abundantly on short stems just overtopping the foliage. For sheltered nooks in a rockery or rootery, few plants have a prettier appearance all the year round, and at no season are they more appreciated than in winter and early spring. If left undisturbed in peaty soil and a favourable situation, all the kinds, some half dozen in number, will spread and soon form large tufts, and produce flowers throughout the winter.

Cereus Malleisoni.—Of the few Cactaceous plants having a climbing tendency this is certainly one of the most beautiful as well as one of the most desirable for general cultivation; it is easy to grow and never fails to yield an abundant crop of blooms annually, a character not possessed by the other kinds. In the Cactus-house at Kew there is a fine specimen of it in flower trained to the rafter, having long thong-like stems drooping down from it. The flowers which are about 4 in. across, are of a brilliant crimson-scarlet, and produced as they are two or three on a short space of stem are exceedingly showy. For growing against the back wall, or trained to a rafter in a hot and rather dry stove, we know of no better kind of succulent than this.

Calla Lilies.—Never in a private garden have we seen *Calla æthiopica* grown so extensively or so well as in the Marquis of Salisbury's garden at Hatfield House. The central stage of one large house was entirely filled with plants of it chiefly in 6-in. pots, each bearing two and three flower-spikes measuring some 6 in. or 7 in. across. About four hundred plants are grown in all, and about half that number were in flower at Christmas time. The culture pursued appears to be simple, the plants being shaken out and repotted annually and an extreme wet treatment does not seem to be practised.

Camellias at Chelsea.—In Messrs. Veitch & Sons' nursery, the Camellia houses, particularly the large span-roofed structure in which the Camellias are planted out, are now assuming a very gay appearance; some of the large plants from 10 ft. to 15 ft. in height are literally covered with blossoms. The collection contains many varieties, but few of the new ones, though extremely beautiful, can eclipse some of the older kinds, such as the double white, imbricata, and fimbriata, for freeness of flowering and vigour of growth. In the large house are several grand and profusely flowered plants of the old white Donkelaari, semi-double crimson, mottled with white; Jubilee, delicate pink, with rose-pink stripes; bicolor, crimson, mottled and striped with white; Chandleri elegans, light rose, and striped; Angustina superba; or Saccioi nova, a beautifully formed flower of a rosy hue; and Lady Hume's Blush, all in excellent condition. In the adjoining houses are smaller plants of the newer kinds, the flowers of which are as near perfection as possible as regards size and symmetry, as well as variety of tints. Many of these are in flower, but the majority have yet to expand, hence a succession of bloom will be obtained till late in spring.

New Yucca (*Y. Peacocki*).—In Mr. Peacock's garden at Hammersmith we observed the other day a new species of Yucca which Mr. Baker, of Kew, has recently named in compliment to Mr. Peacock. It is a handsome plant, distinct in general appearance from its congeners; it forms a symmetrical rosette of narrow stiff leaves about 3 ft. in diameter and will form a valuable fine-foliaged plant. Though it is grown in a greenhouse temperature, Mr. Croucher believes it to be almost, if not quite, hardy, though of course its rarity precludes any experiment being made with regard to this matter.

Melville's Snowdrops.—In the Royal Horticultural Society's garden at Chiswick all the varieties of Snowdrops raised by Mr. Melville at Dunrobin may now be seen in flower, side by side, near the large Vinery; therefore the relative earliness of blooming and other characteristics of the forms may be readily observed. Some of the forms bear blossoms much larger in size than those of the ordinary Snowdrop, while some are below the average size; they are also said to be earlier than the common kind, a character which renders them desirable.

Spring Flowers at York.—In Messrs. Backhouse's nursery the following pretty hardy flowers are in bloom, viz.: *Galanthus Imperati*, one of the finest of the Snowdrops; *Cyclamen Coum vernum*, the spring flowering form of this pretty hardy species; *Crocus Imperati*, with purple flowers tinged and feathered on the exterior with fawn colour and black; *Saxifraga Burseriana major*, a large flowered form of one of the prettiest of all the alpine Saxifragas; and *Leontice altaica*, a rare species with bright yellow flowers produced plentifully on short stems.

Winter-flowering Candytuft.—In the frames at Chiswick Gardens there is a pretty little unnamed species of *Iberis* which Mr. Maw collected in some of the mountains of Greece. It is a dwarf alpine species with numerous trailing branches, furnished with small narrow leaves, and terminated by a head of white flowers; such a pretty species ought certainly to receive a name and become better known, as it is unusual for an *Iberis* to flower in winter.

Varieties of the Persian Cyclamen.—Mr. Williams sends us from his nursery at Upper Holloway samples of a very fine strain of *Cyclamen persicum*. Every shade of colour is represented in the group from the pure white to the deepest crimson. One named Brilliant is by far the deepest we have seen, the colour being of an intense dark crimson with a satiny lustre. All the flowers are large and well formed, and the plants have a sturdy, robust growth, now considered so desirable. In the improvement of the Persian Cyclamen let us hope the graceful form of the original flower will not be changed for the worse.

The Single Japanese Camellia (*C. japonica*).—The beauty of single flowers being now beginning to be recognised, Messrs. Fisher, Son, & Sibray, Handsworth Nursery, Sheffield, have sent us blooms of this well-known shrub—beautiful in its way as any of the rosette-blossomed sorts that have been derived from it. It has strikingly rich crimson-scarlet petals encircling a brush-like tuft of yellow-tipped stamens, which are very showy, and set off finely by the bright shining green foliage.

COUNTRY SEATS AND GARDENS OF
GREAT BRITAIN.*GUNNERSBURY PARK, ACTON.*

GUNNERSBURY is one of the few great London gardens which

that this great drawback to our big city may one day be overcome, and that fair gardens may again be possible, even in its centre; but, alas! at present we can only each year report a vaster area of pleasant suburban country spoiled by smoke. Even where no harm is done to the deciduous vegetation, and where the Rose may yet bloom, the effect of



Gunnersbury: Cedars near the Temple.

the all-destroying and all-disfiguring smoke has left to us as yet almost unsoiled. At Fulham Palace the other day we saw sad evidences of the effects of this on the trees—once so fine—there, and, one by one, our London gardens are losing, through the smoke-plague, that brightness and freshness characteristic of gardens in pleasant places. Let us hope

smut on all evergreens, even before it begins to kill them, is most depressing, and nullifies the best efforts of the planter.

Gunnersbury is pleasantly situated on rising ground, though the immediate surroundings are somewhat flat. Everywhere here one is impressed with that idea of repose and quietude so often aimed at in garden design, yet so seldom attained; but of

course the magnificent tree growth at Gunnersbury contributes in a great measure to produce these results. The Cedar of Lebanon and the Elm have acquired a growth such as is rarely seen, and at every turn their huge boles and towering heads wear an expression of grandeur. The carriage drive, though short, sweeps gracefully beneath these noble trees, while to the left on entering is a broad lawn fringed with trees, amongst which is a magnificent Cedar, remarkable for its symmetrical and noble outline. On the garden side of the mansion is a broad gravelled terrace bordered by a stone coping, from which stretches down to a piece of ornamental water a fine open lawn. This broad expanse of well-kept Grass is decidedly one of the most beautiful features of the place, and its effect is much enhanced by the groups of gigantic Elms and Cedars which flank it on either side, some of the Elms being about 120 ft. high. Through these tree groups can be seen from the house the principal flower garden display, consisting of irregular groups of what are called basket beds, oval in shape, with raised trellises or handles covered with Roses, Clematises, and similar climbers.

One of the most picturesque parts of the ground lies on the western side of the house, where there is a fine ornamental lake, constructed at great expense in consequence of the sloping character of the ground. Being somewhat elevated and open, a fine view is obtained from this point across the park to the Surrey Hills. It is of this part of the grounds one of our views consists. It shows some of the stately Cedars throwing their huge arms across the roof of an ornamental Tuscan temple, with the vertical lines of which their horizontal boughs beautifully harmonise. Cedars abound in this part of the grounds; all of them are of huge dimensions, and their age may be counted by centuries. The Elms, too, seem to be quite 200 years old, but, being the indigenous species, they probably existed even before the place was formed. Some of the branches of these Elms as well as of the Cedars are in themselves as large as ordinary tree trunks. Under the shade of these heavy boughs is a rich undergrowth of Ivy from 1 ft. to 18 in. high, and so green and robust as to be quite delightful. This Ivy carpeting beneath trees is, we noticed, also being carried out in other parts of the grounds, and certainly the system is a good one, and ought to be more practised than it is in places in which Grass fails to grow. Behind the temple is an old-fashioned Italian garden, with beds laid out geometrically and edged with Box 1 ft. or more in height. This in summer, when filled with gay flowers, possesses a singularly fine effect. Surrounding this garden are several fine examples of the large-flowered Magnolia (*M. grandiflora*), the broad shining foliage of which is handsome even in winter. On the lawn immediately beyond the lake are fine examples of the coniferous and other trees, and interspersed with these here and there are circular beds, which in summer are gay with tender plants, and in winter and spring are filled with hardy plants of dwarf growth, notably with Sedums and Saxifrages, which have withstood unharmed even our late severe frosts. Everywhere, indeed, some of the finest of hardy flowers may be met with, and even now early spring flowers are rendering the pleasure grounds and woodland walks charmingly interesting.

From the lawn adjoining the lake a path about a quarter of a mile in length leads to what are called the Potomac grounds. This walk is highly interesting. Leaving the lawn, where, by the way, are some remarkably fine examples of the hardy Palm (*Chamærops excelsa*) still encased in their winter wrappings, an Apple orchard is passed, which in spring is a beautiful sight, though unusual in pleasure grounds; here fruit trees are introduced with fine effect on the lawns, and in one part, near the old conservatory—to be hereafter alluded

to—there is a fine group with Roses trained to their stems. We now pass through a narrow belt of timber trees, which forms a screen separating the mores select part of the park, which is planted with coniferous and other trees, from the more open part on the right. To render the isolated specimens on the lawn more attractive, Clematises and other climbers have been planted at their base, so as to overrun them in the manner represented in our sketch, and when wreathed in summer with gay flowers their effect is very satisfactory. Flanking the walk on either side may be seen colonies of spring flowers and other hardy plants. At the extremity of the belt just alluded to are the recently-formed Potomac grounds, which are of considerable extent—the creation, we believe, of the late Baron, who did so much to improve this estate. Formerly this portion of the grounds was an uncultivated waste, with little else upon it but a few trees and a pond, once a clay pit for bricks; now the brick-kiln is converted into an ornamental tower of grey stone, octagonal in shape, and surmounted with battlements, and the pond has been extended into a broad expanse of ornamental water, whose islets and rocky margins render it highly picturesque. The surroundings of the lake are diversified by knolls and undulations, all effected by artificial means, and a circuitous path renders all sides of it accessible. In one part are some fine old Willows, with their oddly contorted stems and branches dipping in the water, but other portions would be much improved by a growth of waterside plants or shrubs, as they have a bare and shaven appearance. At the upper side of the lake, near the tower, an artificial rocky stream, formed by Mr. Pulham, of Broxbourne, adds greatly to the charms of the place, the rocky head of the inlet being particularly effective. Around the lake, at a little distance from the water's edge, have been introduced bold clumps of Pampas Grass, Bamboos, Arundos, and other moisture-loving plants with good effect. Where the public road flanks this part the boundary is raised and planted in an effective manner with shrubberies and plantations, though it will be some years before the intended effect will be attained. Near the grounds here alluded to the late Baron transplanted some huge trees from another part of the park in order to produce an immediate effect in the more bare portions, and the result has on the whole been satisfactory.

The garden, especially the glass department, has been from time to time considerably added to, and now it will compare favourably with any similar establishment with which we are acquainted. Fruit culture and plant culture are alike carried out well, and one department is not, as is too often the case, neglected in order that perfection may be obtained in another. The glass houses are compactly grouped in a comparatively small area, a circumstance which renders the heating arrangements more convenient. All the houses are well planned and constructed, the chief range of Vineries being especially remarkable, and said to be among the finest in the country. The range has a three-quarter span roof, and is divided into four compartments, each 36 ft. by 26 ft., and some 18 ft. in height. The borders are inside and out connected by means of an arched wall, and the whole of the inside border is covered with a trellis, which, while it does not obstruct heat, effectually hides the hot-water pipes, and is also found useful for sheltering bedding-out plants in spring. The paths are of iron grating, and the houses are otherwise replete with every convenience for ventilating, heating, &c. It was from one of these houses that Mr. Roberts exhibited last season, at various shows, the unusually fine examples of Madresfield Court Grape, to which one compartment is wholly devoted; other kinds grown in these houses are Black Hamburg, Foster's Seedling, Muscats, nearly every

variety of Frontignan, and Duke of Buccleuch, the latter being considered an admirable sort. Adjoining these is another spacious span-roofed Vinery (60 ft. by 40 ft.), filled with Black Hamburgs, and the crops obtained from such a vast extent of roof space are enormous. This house, together with the range previously alluded to, is heated by two of the gold medal boilers, though the Trentham finds most favour with Mr. Roberts. The early Vineries are of course considerably smaller, and their roofs are sharper pitched. Peaches and Nectarines are grown largely, for besides the early houses there is a narrow house, or rather case, divided into five divisions, the aggregate length of which is about 500 ft. This was erected some years ago, so as to cover the trees already on the wall there, which soon exhibited the benefits of protection. The trees are all large, and occupy every inch of available space, while in one un-



Gunnelsbury : Purple Clematis on Arbor-vitæ.

heated division the front part is occupied by a few select kinds of Cherries, and the shelves throughout are devoted to Strawberries, and, later on, French Beans and decorative plants. The principal kinds of Peaches and Nectarines grown under glass are, of the former, A Bec, Royal George, Bellegarde, Barrington, Violette Hâtive, Stirling Castle, Grosse Mignonne, and Belle de Doué—a fine kind, an early variety of Bellegarde, and quite as handsome and well coloured. Of Nectarines there are Lord Napier, Violette Hâtive, Elruge, and Stanwick. Strawberries are forced largely, some 7000 being annually brought in pots under glass. The sorts that find most favour with Mr. Roberts are Keen's Seedling, La Grosse Sucrée, and Aromatic. There is an excellent span-roofed Strawberry house with stages ranging parallel with the roof. Figs are grown in a long narrow house divided into three compartments.

The cultivation of Pine-apples, which was once practised

here on such an extensive scale, is now curtailed considerably though the pits in which the celebrated Pine grower, Mr. Mills, grew his enormous fruits of the Providence variety, which weighed some 15 lb., are still filled with some excellent fruiting and successional plants of Queens, which are relied on for yielding a supply of fruits in summer, when imported Pines are somewhat scarce. There are near the Pine pits numerous other pits of various sizes, which are found valuable for growing decorative plants, forced vegetables, &c., as well as Melons and Cucumbers.

The plant houses, comprising ten compartments, are excellently built structures, and well adapted for the requirements of the plants grown in them. Some three or four houses are filled with all kinds of fine-foliaged plants—Dracenas, Palms, Crotons, and others of a like character, all grown for the purpose of floral decoration, which is extensively carried out without intermission throughout the year. Other houses are solely devoted to forcing various kinds of plants, Azaleas, Rhododendrons, Deutzias, and bulbous plants representing the main bulk. There is an excellent houseful of hard-wooded plants, chiefly Australian and Cape species, such as Boronias, Grevilleas, Acrophyllums, Aphelaxis, Ericas, Epacrises, Tremandras, &c., which, though the collection has not been formed more than a year or so, consists of some fine examples, all in excellent health, notwithstanding their reputed character of being difficult to manage. The most noteworthy class of plants here, however, is the Orchids, which are grown to such perfection as is rarely attained. The collection is not large, and consists mainly of East Indian kinds, such as Aerides, Saccolabiums, Vandas, Angræcums, and Phalænopsis. In one house are cool Orchids chiefly; in another, the more showy-Masdevallias and Odontoglossums; and in a third, Dendrobiums and a mixed collection of showy Orchids. The plants of Phalænopsis Schilleriana are particularly fine; they are grown in baskets suspended near the front sashes of the East Indian house, and in this position they have attained a large size and a vigorous growth, and at the present time several are gay with widely branching spikes of blossoms. The Aerides, &c., are grown in pots, placed on a sloping bed of Cocoa-nut fibre refuse, which seems an excellent plan, as there is a continuous, yet not excessive, evaporation constantly being given off. The plants of Odontoglossum Alexandræ are worthy of special note, as they are unusually vigorous, having large and plump pseudo-bulbs with that bright greenish hue which indicates robust health. The varieties comprise some of the finest yet introduced, and when the plants, which number several scores, are in full bloom with their long, arching, and in most cases branching flower-spikes, the sight is one worth seeing. Other of the better kinds of Odontoglossum are grown equally fine, including the lovely *O. vexillarium*, which in this collection has been grown to an unprecedented size; the equally beautiful *O. Roezli* and its variety *album*, *O. Phalænopsis*, and a host of others may also be found here.

There is an excellent Rose house which is well stocked with all the leading kinds, the roof being occupied chiefly by Tea-scented kinds, all of which are found extremely useful for supplying cut flowers in winter and early spring. The surface of the centre bed is made attractive by greenhouse Ferns and other fine-foliaged plants placed on a slightly raised rockery, while the back wall is covered with greenhouse climbers; and overhanging the walls of the beds is the elegant growth of *Rhynchospermum jasminoides*, a capital plant for such a purpose.

While upon the subject of plant houses we must not overlook the fine old conservatory, which is a building 60 ft. in length, with bold circular front windows, embellished with large Chinese vases. The collection of Orange trees which

this structure contains, principally of the Mandarin kind, is in every way remarkable, some of the specimens of the Mandarin variety being 6 ft. high and as much through; and of the large-leaved kinds, there are noble specimens 18 ft. high and 12 ft. through, and all in the most luxuriant health, combined with great symmetry and beauty of form. The Mandarin Oranges flower very freely, and produce highly perfumed fruit, which is used for dessert purposes. The trees are growing in large square boxes, and receive an annual thick top dressing of good soil and occasional supplies of weak guano water at the root; by this treatment, combined with strict attention to cleanliness of foliage, by sponging and syringing with clean water, they are kept in the most luxuriant health. There are also two of the finest plants of the Tree Fern (*Dicksonia antarctica*) having stems 21 ft. in height, and terminated by spreading heads of fronds. It is intended, we understand, to lower the tubs, so as to bring the heads away from the roof under which they are cramped. In another house, at the back of and attached to the Orangery, are stored for the winter numerous fine old plants of *Fuchsia corallina*, a capital old decorative variety; *Myrtles*, six extremely large plants in boxes; and some of the hardier kinds of *Palms*; all these, including the Oranges, are used for the decoration of the terrace and other suitable portions of the grounds in the summer time. The high back wall of this structure is covered with the red and white *Lapageria*, the borders being made on a raised and well drained bed, and the shoots trained to a wire trellis attached to the wall.

The walled-in garden enclosing the principal ranges of glass houses is exclusively devoted to hardy fruits, bush fruits being placed in the open quarters, and pyramid and espalier Pear and Apple trees near the walks, while a long wall with an easterly aspect is occupied by young Pear trees recently planted on a system which Mr. Roberts considers an excellent one. The trees are planted some 2 ft. apart, and it is intended that the principal stems should be trained vertically till they reach the top of the wall, which is from 12 ft. to 14 ft. in height, then their lateral branches will be trained with their points bent downwards, a plan by which the wall will be entirely covered in a short time. All the leading varieties are represented, and each is marked with Stevens and Pinches' embossed zinc labels, which seem to be specially adapted for wall trees, as the name can be distinctly seen, and, moreover, they are very durable. To the west of this walled-in garden is an open space, enclosed partly by a wall or high fence, on which are grown fruit trees and similar subjects.

A kitchen garden, comprising over ten or twelve acres of open space, with an excellent soil for vegetable growing, lies some distance from the house beyond the park, the old garden not being of sufficient extent to meet the demand made upon it.

W. G.

HERBACEOUS AND OTHER FLOWERS AT SAN REMO IN JANUARY.

AMONG the earliest flowers to open are those of the *Narcissus*. Four distinct species were in bloom in the open in the month of January. These were *N. italicus*, *papyraceus*, *Bertolini*, and *Panizzianus*. The first to bloom and die is *N. Panizzianus*, a perfect gem in form, colour, and fragrance. This species and *N. Bertolini* both grow, I am told, in the Olive woods above San Remo, but every year they become scarcer, owing to visitors carrying away the bulbs. A beautiful *Anemone*, rightly called *stellata*, blooms in the early part of January, as the blue *Hepatica* does before the close of the month. These also have been largely introduced into the gardens from the Olive woods above the town. *Crocus versicolor* on the rocks above Monaco is the first purple *Crocus* of the year, as *C. minimus* is in Corsica. The Siberian Saxifrage (*S. crassifolia*) I noticed with its spikes of purple bloom throughout the whole of January, and it really looked showy at this early season of the year.

Eriocephalus aromaticus is used in the Riviera as a border edging, its pale foliage and dark tubular florets making it conspicuous among our lowlier Composites. With us it must be treated as a greenhouse plant. *Iberis semperflorans* is very useful as a bouquet flower, furnishing as it does all the winter its conspicuous blooms and evergreen leaves. *Gazania* is gay even in the month of January, and displays its wealth of golden flowers. Pretty little bushes of *Lopezia racemosa* are loaded with flower, and are evidently great favourites in the Riviera in the spring of the year. It is a native of Mexico, and allied to our *Circæa*, which is likewise an *Onagrad*. The *Lantanas*, pegged down like our *Verbenas*, offer flowers all throughout January, *Lantana crocea* being the most beautiful and conspicuous. Much is made of a bright green-leaved *Chrysanthemum* (I think it is *frutescens*) and a white *Ageratum* in bouquets. These two flowers are seldom absent from an Italian bouquet early in the year.

P. INCHBALD.
The Lodge, Hovingham, York.

THE FLOWER GARDEN.

AMERICAN VIOLETS.

THE remarks of "W. G." (p. 65) prompt me to say something about these and their amenability to garden use. Violets and Little Innocents are the glory of our meadows in early spring; they abound in the utmost profusion and moderate variety. *V. cucullata* is by far the commonest, growing, as it does, almost everywhere where the ground is moist, in clumps in woods, abundant on the outskirts of woods among the bushes, and in great profusion in damp meadow-land. The sweet white Violet (*blanda*) is very plentiful in moist and open meadows, where likewise the lance-leaved (*lanceolata*) also prevails; both seem to enjoy the open sunny exposure and the damp foothold, and self-sow themselves in an extravagant manner. The Primrose-leaved (*primulæfolia*) also grows in damp land, and particularly abounds in old pastures and neglected fields. The arrow-leaved (*sagittaria*) seems at home anywhere, in meadow, field, or gravel bank, and is one of the earliest to bloom; a variety of it is common on high, dry, rocky ground, where it blooms sparingly in summer and autumn, as well as freely in spring. The Bird's-foot Violet (*pedata*) is very plentiful in dry, gravelly, or sandy land and rocky places, and although it abounds in the open yet it is frequent in the shade on rocky slopes. The bicolor variety is very rare in field or garden. The Canada Violet (*canadensis*) is a leafy-stemmed species that grows in rich woodlands, where also the Downy Yellow (*pubescens*) prevails, but it is not always downy; it is often smooth. The Dog Violet (*canina* var. *sylvestris*) is abundant in damp or boggy ground, and I found the Marsh Violet (*palustris*) quite as plentiful in spongy places in the sub-alpine to alpine regions of the White Mountains.

In the bog garden the white, sweet, and lance-leaved Violets may be naturalised with good effect, and all other damp-loving species and varieties included and kept in bounds. It is not the isolated tufts with labels attached that make gardening a pleasure; no, it is natural profusion without confusion. These little Violets will not interfere with whatever else is growing there. They come up and blossom in the spring; then their season ends. The Meadow Beauty (*Rhoxia*), *Habenarias*, Marsh Marigolds, Buckbean, and greater bog plants grow up and cover the Violets, which thus remain subdued till the succeeding spring. The stouter kinds, like the common blue (*cucullata*) and arrow-leaved, enjoy growing in clumps about the shrubby edges, in the rootery, or outskirts of the rockery; indeed, wherever they can enjoy something like natural conditions. Leading to our rockery in the wood I have a little walk bordered with *Sedum ternatum*, then a line of *Crocuses* backed with the variegated-flowered form of our common blue Violet; the Violet thrives well and blooms copiously every year. This kind is an excellent open border plant. The arrow-leaved and Bird's-foot Violets take kindly to any part of the rockery, the last-named preferring a sunny exposure. A year ago last October we lifted a lot of wild Bird's-foot Violets, potted and kept them in a cool house during the winter, and in February and March they blossomed most beautifully, having from nine to thirteen blooms open at one time in a 4-in. pot. The Larkspur Violet (*Delphinifolia*), from the Western prairies, is like the Bird's-foot, but larger; it grows nicely in our rockery. The long-spurred Violet (*rostrata*) is a dense-growing leafy-stemmed sort indigenous to shady hillsides. In the garden it enjoys the margin of the bog-garden, and scatters itself everywhere in the

shady rockery. It is exceedingly profuse. The pale Violet (*striata*), which grows in low grounds, especially westward, makes good pocket-fulls in the shady rockery and also grows well in the open sunny border. It is a leafy-stemmed sort, and has dull white flowers, which it bears more or less all summer long. The Canada Violet is a tall, leafy-stemmed sort, with white, purple-tinged flowers, which it bears copiously in early summer and scatteringly all summer long. It delights in being naturalised in a shady rockery, where it self-sows itself freely. The habits of the Downy Violets are similar to those of the Canada Violet, except that it is a more persistent grower. The round-leaved Violet (*rotundifolia*) has small yellow flowers; it grows in cold woods, but seems to need a little coaxing in the garden.

There are other species, but they are somewhat rare. Although the prevailing colour in our Violets is blue, many species have

that if well-grown plants of the smaller species were more frequently shown, a more discriminating taste would be encouraged, less value would be attached to mere size, and the public might be led to notice that too often the most interesting species of our British Ferns have not been represented at our shows. Another good result would be effected if the many who in their homes are penned in were led to see that one half the species, and those the most beautiful, can be grown in very limited space. I think if a dozen, consisting of something like the following: *Cystopteris fragilis*, *C. Dickieana*, *C. alpina*, *Athyrium f.-f. pulcherrimum*, *Athyrium f.-f. kalothrix*, *Asplenium fontanum*, *A. Trichomanes incisum*, *A. viride*, *Trichomanes radicans*, *Woodsia ilvensis*, *W. alpina*, and *Scolopendrium crispum* (the minor variety) were placed in competition with the orthodox prize winners, they would have a favourable impression on the judges, and remind others that in our craving for bulk and novelty we are forgetting the better things which, if not so striking,



Gunnelsbury : in Cedar Grove near the house (see p. 228).

white-flowered varieties as well, and also a great divergence is often apparent in their leaves. European Violets take to us kindly and under favourable conditions naturalise themselves freely.

W. FALCONER.

Botanic Garden, Cambridge, Mass.

SMALL V. LARGE BRITISH FERNS.

THE interesting notes on British Ferns which appeared in a recent number of THE GARDEN call to mind the unsatisfactory way in which British Ferns are represented at some of our large shows. Year after year the same huge specimens are staged, the exhibitors apparently satisfied if the prizes are gained. I am aware that in a large exhibition it is imperative that many plants of large size should be staged; the spaces must be filled; the general effect must be considered. Whilst, however, finding space for the sometimes over large specimens, I think it would be a decided advantage if the committees would encourage the exhibition of the dwarf species of British Ferns by offering prizes for plants grown in say 6-in. or 8-in. pots. Although I have a love for large Ferns, I venture to think

would prove a more lasting source of interest. One plant amongst those named, *Athyrium f.-f. kalothrix*, is so finely divided, that it has been described by Messrs. Stansfield (of Tanshelf, Pontefract) as "beautiful hair;" and although the plant I have seen is only very small, I am inclined to believe that their description of it as the most delicately beautiful of all Ferns will, when the plant is seen in good condition, prove to be correct.

HUNTLEY BROOK.

Bury, Lancashire.

GROWING TRILLIUMS.

IN answer to "J. H. H." (page 66) I may say that we grow a good many kinds of these, but have no trouble whatever with them. In their wild state they are found in moist, rich woods where the fallen leaves and decaying herbage enrich the soil and leave upon its surface a goodly layer of vegetable mould; and oftentimes they grow in deep beds of this mould, just about the same as may be found in hollows in rich woodlands in England. They start early into growth and blossom in the spring before the trees are fully leaved; the tree-shade in the summer is a benefit to them, the fallen leaves cover them

over and protect them in winter, and mulch them from excessive drought in summer. In the garden we have *T. grandiflorum* and the purple and white forms of *T. erectum*, also *T. sessile* growing here and there about the rockeries in shady places, and under the trees and among the Vines and bushes outskirting the rockeries, and they seem perfectly at home and vigorous. As we have only a limited number of the other sorts I am nursing them a little prior to transplanting them in the rockeries. Trilliums do not do well in open sunny places, nor in very dry places anywhere.

Than this case of Trilliums, what better argument have we in favour of leaving the ground about our bushes unmolested and allowing to remain thereon the leaves that fall upon it? Plead untidiness! I cannot admit it. The winds of autumn settle the leaves about and around the bushes, the rains and snows of winter compact them there, and the heat and moisture of the spring and summer rot them there. If in the spring those leaves are left undisturbed they will not blow about. Let us see the woods and lanes in spring: where are last autumn's leaves? They are not being blown about, but compactly settled into every hole and hollow, lashed around the bases of the shrubs and bushes, packed in among the Grass, and firmly grasped in places wherever set.

Why is it that our shrubberies are unfitly fringed? Because those appropriate little plants, as Partridge-berry, Cow-berry (*Galax*), Winter Green (*Pyrola*), and the like, that would luxuriate in such a home under natural conditions must die when subjected to such hard artificial treatment. It is not the poverty of the soil that ails them, but the exposure of its surface. There is not that spongy mat upon the top which the wood affords them. The beds, denuded of Nature's crust and scraped and stirred, as is often the fashion, exposed to drying winds and summers' sun, heavy showers with after bakings are very Bastiles to the little guests that should enjoy an Eden there. No Trillium likes a scraping of the neck; Blood-root hates it; Anemones may submit if their roots reach down beyond it; but *Lycopodium* will sooner die than stand it.

Botanic Garden, Cambridge, Mass.

W. FALCONER.

LILIES—ANNUAL OR PERENNIAL.

As my friend Mr. Miles alludes to me in his remarks upon Lilies, and wishes to know what I have to say, I answer with much pleasure his request. I have already in a previous number of THE GARDEN given my views on this question, and am glad to see that I am fully supported by one so well qualified to judge as Mr. Wolley Dod; in fact, his remarks are only a repetition in substance of what I had written, and if they were not, his communication must, I think, fully settle the question. But a few additional notes may not be out of place. The principal fact seems to be what is an annual? Mrs. Loudon in the *Ladies' Companion* says annuals are "plants which live only one summer," and Loudon and McIntosh give the same definition. Now, if the Lily grows up, flowers, and dies the same year, it is an annual; if not, it is something else. What is a biennial? The same authors tell us that biennials are "plants that do not produce their flowers till the second year, and then die." If the Lily does this it is a biennial; if not, it is something else. And what is a perennial? Again the same authors tell us that perennials are "plants which are not woody, but which generally die down to the ground every year and spring up again the year following." If the Lily does this, it is a perennial; if not, then it is something else, whatever it may be called.

The Phlox and the Pæony will certainly be admitted to be perennials, and I cannot see any difference between them and the Lily. The Lily never flowers from the same root, neither does the Phlox or the Pæony. They both throw up a strong stem, which after flowering dies down to the base, when there is a dormant bud ready to take its place the following year. Precisely so with the Lily; the flowering stem dies down to the old bulb, when there is one or more dormant buds at its base which enlarge and take the place of the old one; one having fibrous roots on a woody stem, and the other fleshy scales surrounded by others of the same character makes no difference whatever; it is only Nature's mode of reproduction adapted to the various conditions in which plants grow. Undoubtedly there are hundreds of gardens in Great Britain in which the white Lily has been growing undisturbed for a dozen or more years. Will annuals do this? will the Phlox Drummondii or the *Coreopsis* do this? or indeed any so-called true annual? Mr. Miles has recorded his failures, and as he is a candid man, I hope he will record his failure to undertake to make the Lily an annual. I am entirely in accord with my friend Mr. Wilson and Max

Leichtlin that the Lily is not an annual nor a biennial, but a true perennial. That the old bulbs of most bulbous plants die after flowering is so well known, and has been so thoroughly shown by drawings in old works on gardening, that I am surprised anyone should dispute the fact.

No one, I presume, will deny that *Lycaste Skinneri* or *Oxalis Bowiei* are perennials. Yet their growth is in principle just the same as that of the Lily. The old pseudo-bulb of the Orchid flowers but once, but instead of decaying and forming a bud at the base of the old flowering stem it retains its vitality, but breaks or throws up a new one from the base of the outside of the bulb, the old bulb serving as nutriment to the young growth just as the old scales of Lilies sustain the new germ. With the *Oxalis* we plant one bulb on the surface of a pot, and after it has done blooming and the foliage decayed, we turn it out and find from three to five bulbs at the very bottom of the pot, having been formed out of the fleshy roots 4 in. from the base of the old bulb. Why should we not call these annuals just as much as the Lily? In one case the old bulb never grows again, and in the other the old bulb more completely decays than the Lily—nothing remains. The same may be said of the Tuberose; the old bulb, after flowering, becomes only an old stump, out of which the new germs are formed to take its place. A seedling Lily will not bloom until it has had three or four years' growth at least. But it does not appear necessary to notice the growth of other bulbs to show, what appears so plain, that the Lily is a true perennial.

Boston, Mass.

C. M. HOVEY.

SHOULD CUT GRASS BE LEFT ON LAWNS?

In answer to "J. E. H." (p. 30) I would say, certainly not. Before the Grass begins to grow much in spring I have all the Grass banks, lawns, and plots gone over with an iron rake, and all old Grass, Moss, and dirt that can be removed without hurting the Grass cleared off. The first cutting is usually a heavy one, and as it is being cut I have it raked up and cleared off. Succeeding cuttings, if they are light, and the weather warm and sunny, may not need raking off, but as soon as the cutting is somewhat heavy I have the Grass raked off at once. But no matter how light the cuttings may be, if I find that the turf is getting the least matted with old cut Grass I have it raked over and rolled. An idea is common that the cut Grass remaining on the surface acts as a beneficial mulching to the roots against the summer's hot sunshine, but my observation is to the contrary. The best mulch against the drought of summer is living Grass. Lawns are often enervated by too close and frequent mowings, and in mid-summer it is common to see a close-shaven, brown-burned lawn that might have been green had the Grass been permitted to grow longer. I do not use a Grass-gathering machine. I have not yet forgotten the days of my apprenticeship and early journeyman-ship, when it took one to hold and push and three to pull a 16-in. machine, and very hard work it was too. Now-a-days a common labourer goes day after day at good walking speed with a 14-in. Philadelphia or Pennsylvania machine, does first-class work, and thinks he has the easiest job in the garden.

Cambridge Botanic Garden, Mass.

W. FALCONER.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Wallflowers and Frost.—With all the severe frost and thaw, and much rain which has followed, and which, I believe, is the cause of more actual harm than the frost, yet my Wallflowers are not at all injured this season, though the two previous years' severity played sad havoc amongst them, almost entirely annihilating them. I had some hundreds of plants until then, and they were chiefly self-sown; in fact, I have become convinced that if they had been timely thinned out, the disaster would not have been so great, as the plants, if left room to grow, are more hardened than when left too crowded together. I mention this failure because we are all apt to rush to the fore when success attends our efforts, but failures are seldom recorded. Yet I venture to say that if we sometimes remember our failures, we should be gainers, rather than losers, by doing so.—J. S. T.

Cordylina australis in Ireland.—A fine specimen of this, some 18 feet high, was killed in the winter of 1878-9 at Knockmaroon, near Dublin, in the gardens of Mr. Gilbert Burns; also some fine specimens at Glasnevin, and some dozens in other gardens near Dublin of nearly equal dimensions. Those plants used to flower and ripen seeds from which hundreds of seedlings have been raised. Though killed to the ground, they have sent up quite a tassock of

young growths from around the base of the stems which bid fair to rival the original specimens if we are fortunate to have the return of a series of mild winters again. An excellent plan for their protection is to gather the leaves close together and wrap them up with a coil of haybands, shaking also a good thick covering of dry hay round their bases; by this means a number of plants have been preserved over the recent severe and prolonged frost. The tying up of the leaves in a close sheaf keeps the hearts of the plants dry, and consequently frost has not the same injurious effect on them.—HIBERNIAN.

Plants after the Thaw.—I have been looking somewhat fearfully over the garden after the disappearance of the snow to see what harm has been done, and am pleased to find so few evidences of mischief and so many of apparent health and vigour. Without doubt we owe a debt of gratitude to the snow. It has saved myriads of plants from harm, and made our losses few. Probably in the case of tall plants the result will be different. Many tender shrubs, Tea Roses, and exposed vegetables have severely suffered. The snow protected the roots, but left the tenderest and most vital parts exposed. All kinds of the Cabbage tribe at present look miserable. Broccoli has been just above the snow line, and the stems feel soft and flabby, whilst even yet the green tops look healthy. All plants buried or partially buried in the snow, however, seem, as I have said, none the worse for the severe weather. Primroses and Polyanthus, Pansies and Violets, are looking up fresh and vigorous, and show bloom here and there, just as though there had been no bad weather. Just as these low-growing things are, so are all the others. When the snow cleared from off the Snowdrops, it revealed blossoms that had come from out the hard soil snowy white. Snapdragons look quite uninjured, quite fresh and vigorous. This is a surprise, for the past two winters killed these entirely. Wallflowers are none the worse, beyond being a little deranged by the weight of the snow. Honesty has had its broad leaves depressed, as have also the Foxgloves and other ample-foliaged plants. The somewhat tender *Myosotis dissitiflora* looks up fresh and pert, with here and there flower-buds showing; even Golden Feather has its tender foliage but little tarnished. No doubt there will be a wail raised over the killed denizens of badly heated greenhouses and frames, but it is pleasant to find that plants reputedly hardy seem not to have belied their reputation.—A. D.

Hepaticas at Home.—Apropos of the remarks of Mr. J. Wood (page 11) I may say that *Hepatica triloba* grows abundantly in some of the woods around here. Take, for instance, a wood near Stoneham. On the south-east side of a sloping hill, well wooded with brushy Oaks and Maples, Hepaticas nestle in the Grass in the utmost abundance at the very stem-base of the trees, close up and under the bushes in the openings between them, just as Primroses occur in English woods. The soil is loamy, with a crust of vegetable mould composed of decayed leaves, Grass, and twigs. The trees and bushes are mostly deciduous, and shade the Hepaticas pretty heavily in the summer time, but when the little gems are in bloom in the early spring they have good sunlight, for then the trees are still leafless. The Hepaticaleaves are positively evergreen.—W. FALCONER, *Botanic Garden, Cambridge, Mass.*

Tree Roots in Borders.—In answer to your correspondent who has a difficulty with regard to borders filled with tree roots, I can give him my experience. I covered a border with cinders and coal dust, about 4 in. thick, and on the surface of this formed a rockery, or rather a rock garden, with a substratum of good peat and loam covering the cinders. The tree roots have not attempted to penetrate the coal dust (not coal ashes), which they much dislike, and my rock garden has flourished wonderfully well, quite answering my expectations; of course it was not a large border.—HENRY BUNNEY.

Bedding Pelargoniums in Moss.—Where large quantities of plants are required for summer decoration many expedients for their accommodation and preparation have to be adopted, for potting them off singly is impossible. Many of the tender carpet bedding plants are propagated and grown in boxes, but Pelargoniums draw up weakly if not allowed plenty of space in which to develop lateral growths; consequently in order to provide dwarf bushy plants we adopt the following plan: The cuttings are dibbled into heated pits in autumn in light sandy soil about 4 in. apart; only just sufficient water is given to keep them from flagging, and as soon as rooted they are kept as cool and airy as possible, a little heat being turned on in the daytime to dispel damp, and at night to keep out frost. Under this treatment nearly every cutting makes a good plant. At this time of year we procure a quantity of rough Moss, and, taking a handful of it, place it with a little soil over the roots of each cutting, tying the Moss up in a ball with bast. They are then replanted on the floors of the forcing houses where a genial temperature is maintained, using a little fine soil to work in between

the Moss. Thus situated, if kept watered and treated like other occupants of the house, they quickly start into growth, when the points must be pinched out to induce a bushy habit, and when well rooted they may be transferred to cold pits to be hardened off preparatory to planting out. Such plants will be found to surpass those from pot-bound pots, as the ball of Moss will be full of fibry roots ready to take hold of the soil and carry on growth without any check.—J. GROOM, *Linton.*

Spring Flowers and the Frost.—Snowdrops, Crocuses, and Aconites, that but a few days ago were buried deep in snow, are now aglow with blossoms. When the late exceptionally severe frost set in, following an unusually mild period, our beds of hardy bulbs, in common with other vegetation, were unusually advanced for the time of year; even on the 1st of January Snowdrops were showing the white tips of their blooms, and Aconites their golden petals, quite as much as they ordinarily do on the 1st of February; but with the opening year a decided change set in; the soil was soon frozen hard and then covered with snow, which proved a real boon to vegetation, sheltering it from the effects of the severe frosts that followed. With the disappearance of the snow we are able to take stock of our losses by the frost, and they are less than might have been expected, probably owing to the growth of all kinds of plants being better matured last summer than in the preceding one. Our hardy bulbs made considerable progress under the snow. They were, many years ago, dibbled in as single bulbs in various patterns; and although they have increased to broad bands and edgings, yet they show the pattern in which they were originally planted as true as the first year in which they were planted. In fact, they are not only welcome harbingers of spring, but they are the forerunners of innumerable other hardy plants that follow in succession, and that only need once planting to spring up year by year at their appointed time.—G. J.

Clintonia pulchella.—Of the many annuals that are employed for the summer decoration of our gardens, few are prettier than the subject of our present notice. It is of dwarf habit, rarely exceeding 6 in. in height, thus rendering it suitable for edging small beds or borders. When covered with its bright blue flowers it presents an extremely attractive appearance. Strange to say, this little *Clintonia* appears to be but little grown. Perhaps want of generous culture has brought it into discredit, a fate which has overtaken more than one good annual. Where annuals are grown as pot plants *Clintonia pulchella* should be grown, as it forms an excellent subject for that purpose by reason of its dwarf, compact habit and floriferous nature. Few think proper to bestow upon annuals the care which they merit, and without which they yield but a poor show of bloom, and last but a short time in flower. *Clintonia pulchella* likes a free, well enriched soil and an open situation. The seed should be sown in March and April in the open ground and some two months earlier for potculture. Each plant should be allowed quite 8 in. for development, and those from the last sowing should be well mulched and watered in hot weather.—J. C. B.

Hardiness of Tree Pæonies.—As the young growths of these were in a very advanced state previous to the severe visitation which we have lately had, I felt sure that they would be at least killed back to the old wood. I am, however, agreeably surprised to find that they do not exhibit the least appearance of injury, while the leaves of some hardy evergreens, such as *Phillyreas*, look as if scalded. There are some extremely beautiful varieties in cultivation now that only need to be seen to render Pæonies more generally grown than they have been of late years. I have frequently noticed how Pæonies recover from the effects of spring frosts when apparently killed, but I never remember seeing the young shoots uninjured by a temperature of from 20° to 27° of frost before. I may add that large bushes have an excellent effect amongst dark-foliaged *Rhododendrons*, or as single specimens on Grass. They are extremely floriferous, and anyone wishing for striking effects in permanent beds of shrubs should not omit the many beautiful varieties of Moutans or Tree Pæonies.—J. GROOM, *Linton.*

Churchyard Grass.—I would recommend enquirer (p. 175) to use turf instead of Grass seeds. It would require a good many turves, which should be about 1 in. thick, to cover 2 acres, and the expenses would be considerable, but the covering would be good and lasting. As to the Grass seeds having grown freely at first, this fault must be either in the soil, or the variety of Grass sown, which might not have been of a permanent character. Presuming the ground does not require draining, I should dig it over about 3 in. deep, rake it level, and lay down turf.—J. A., *Dalton Hall.*

Erica codonodes.—I am sorry to say that our plants of this Heath are killed to the surface of the soil this winter with a temperature of -1° on the 25th of January. I have seen *E. codonodes* forming large bushes with annual spikes of bloom 3 ft. high on the

south coast of England. There we also planted *Erica melanthera*, but it did not grow so freely.—HIBERNIAN.

FORTHCOMING EXHIBITION AT MANCHESTER.

AMONG coming events undoubtedly the most important is that of the grand International Horticultural Exhibition to be held in the Royal Botanic Gardens, Manchester, on the 24th and the 27th of August inclusive. As a section of the schedule is open for horticultural societies in any part of the world to exhibit either fruits or vegetables from their respective districts, liberal prizes being offered for collections of fruits and vegetables under this section, and another section is devoted to fruits of foreign growth, in which special classes are appointed for France, Italy, Germany, Holland, Belgium, the United States of America, British North America, Turkey, Egypt, and Nova Scotia, the forthcoming show in the north promises to be in fact as well as in name—international. Over £150 are offered in prizes in these classes. One of the chief characteristics of the most liberal and comprehensive schedule just issued is the important place assigned to fruit. It is not only first on the schedule, but may be said to be first in importance throughout; there are no fewer than 58 open classes, in which 174 prizes are offered in sums varying from £20 to £1, amounting in the aggregate to nearly £450. Over £60 are offered to fruiterers only. These sums added together show a gross total of over £630 for fruit. Nor does this exhaust the fruit prizes offered at Manchester. The Veitch Memorial Trustees offer £20 more in four prizes of £5 each, and the General Horticultural Company (J. Wills) offer two first prizes of 30 guineas and two seconds of 20 guineas for fruit. As these are probably the largest prizes ever offered for fruit in this country, it may be useful to intending exhibitors, while it cannot fail to be a matter of horticultural interest, to state that two of these prizes, a first and a second, are for six bunches of Grapes, two bunches of three varieties, and the other first and second are for the best collection of twelve kinds of fruit, including two Pines, two kinds of Grapes, two Melons, and six other kinds of fruits. There are nearly 50 classes for pot plants, and £600 offered for prizes. Cut flowers are most liberally provided for in 25 classes, and in addition to this the National Rose Society and the National Picotee and Carnation Society are to be amalgamated with the International Show at Manchester, and will each issue its separate schedule of prizes. This is as it should be, different societies combining their efforts to make one great brilliant show between them in different centres. As one of those who have long advocated a Rose show in August, I rejoice most heartily at the prospect of the National Rose Society trying the experiment under the favourable auspices of the Manchester great International Show. Neither have matters of taste been overlooked in the all-embracing schedules issued by Mr. Bruce Findlay, the accomplished curator of the Manchester Botanic Gardens and the energetic and successful manager of all the great shows held there. Five classes are devoted to bouquets, and one to table decorations for 12 persons, the prizes for the latter being on the liberal scale of £15, £10, £6, and £4. The cottagers, too, are liberally provided for in 26 classes, in which numerous and liberal prizes are offered for every possible production of the cottager's garden. Garden requisites, implements and structures, tools, &c., have always held an important place in the exhibitions of the Manchester Botanical Society. These have been amply provided for at the forthcoming International Show by the providing of separate classes for such things as garden-seats, mowing machines, collection of houses, boilers, valves, frames, &c., best constructed greenhouse, the best boiler, scientifically and practically considered, and the best conservatory for a smoky neighbourhood. The latter is a capital and, as far as the offering of a prize for a smoke-proof house is concerned, I believe a new idea. What would devoted horticulturists in, say, Wolverhampton, Sheffield, or Newcastle-on-Tyne give for a glass house that could overcome or at least modify the evils of the dense smoke of such localities. I find, however, have omitted vegetables. There are 33 classes for these, independent of very liberal prizes by the Messrs. Sutton and Sons; Dickson, Brown, and Tait; Dickson and Robinson, &c. The matter has been taken up with such spirit, that over £2000 have already been subscribed to promote this great show. It is said that £2000 more will be needed, and there is little doubt that it will be forthcoming. Every horticulturist must wish the event success, and it is hoped that not a few readers of THE GARDEN will do their part to make it so. There is room enough for all competitors in the numerous classes, and the prizes are so numerous and so liberal that hardly any meritorious exhibit can return from Manchester unhonoured or unrewarded. Such efforts to uphold and extend the renown of horticulture deserve the undivided support of our best cultivators, while all interested in gardening must surely exclaim, Well done, Manchester! which at this show and the one held from

the 3rd to the 10th of June awards over £3000 in prizes—a sum unprecedented in the history of one society in any previous year.

D. T. FISH.

THE GARDEN FLORA.

PLATE CCLXXIII.—THE CARDINAL LARKSPUR.

(DELPHINIUM CARDINALE.)

WHEN we first saw this Larkspur in flower in Mr. Joad's garden at Oakfield, Wimbledon Park, we thought it one of the prettiest hardy flowers we had ever seen, the colour being so novel for a tall Larkspur. The elegant spreading habit of the plant, too, made it extremely attractive, and when grown well, as it is in the garden in question, its beauty is very striking. This Californian Larkspur was first introduced to cultivation by Messrs. Veitch and Son about twenty-five years ago, but became almost, if not entirely, lost to gardens. This gradual disappearance of a plant so distinct and novel has been supposed to indicate a constitution unsuitable to the English climate, but it was more probably due to the fact that, unlike its hardier congener, *D. nudicaule*, it failed to produce seed in any quantity, and, being like that, a short-lived perennial, requiring frequent renewal by seed, the means for this perpetuation being wanting, the plant naturally died out. That it would be extensively cultivated, in company with the *D. nudicaule*, were its merits known and seed available, there is no doubt. It is perfectly distinct from the *D. nudicaule*, to which it is closely allied, being a taller plant, in which feature it agrees with the variety *elatius*. It differs, however, from all the forms of *D. nudicaule* in the shape and colour of its flower, which is more open and rather larger, of a brighter scarlet with a decided yellow centre. The foliage is also larger and more deeply cleft, usually nearly to the base. As affording an easy means of identifying this species in its very earliest stages of growth, it may also be stated that when germinating the seed invariably produces distinct cotyledons or seed leaves, between which the plumule or embryo stem arises as in most other plants, whilst in *D. nudicaule* the seed-lobes and their foot-stalks are confluent and the plumule emerges laterally. The same peculiarity shows itself in the germination of *D. tricornis*.

Culture and Position.—*D. cardinale* blossoms at a later period of the summer, and continues longer in flower than *D. nudicaule*, owing in part to its slower development. It is a most desirable plant, apparently as hardy as *D. nudicaule*, having survived the winter of 1875-6 without the least protection in sandy soil. Seedlings will probably not flower till the second season. In very damp soil it would be prudent to protect the root with a hand-light or inverted pot in winter. We cannot but express a hope that this beautiful plant will obtain a foothold in our gardens, and not again become well nigh lost, as it has been; it certainly well repays any extra care and attention which it seemingly requires to grow it to perfection. What a showy garden might we have of Larkspurs alone, now that we have blues of various shades and intensity, whites, pinks, purples, and scarlets! In giving a brief description of this Larkspur we cannot do better than quote that of the two scarlet species found in California from that excellent work by Dr. Asa Gray "The Botany of California."

***Delphinium nudicaule* (Torrey and Gray).**—Smooth or slightly villous; stem $\frac{1}{2}$ ft. to 2 ft. high or more; leaves most near the base of the stem, 1 in. to 3 in. in diameter, 3 to 5 lobed, the lobes more or less deeply, 3 to 7, toothed with broad obtuse mucronulate segments; flowers 1 in. to 1½ in. long, including the straight spur, which is longer than the sepals, usually light scarlet with more or less of orange; sepals but little spreading; petals usually ciliate or somewhat villous; carpels pubescent or smooth. (Bot. Mag., tab. 5819).

***D. var. elatius* (Thompson).**—The taller form with more leafy stems, the flowers rather longer with more slender spurs than in the typical state. (Garden, vol. iii., p. 477.) *D. sarco-phyllum* (Hook and Arn. Bot. Beechy, 317.)

In the coast ranges from Mendocino Co. to San Francisco; Plumas Co.

***D. cardinale* (Hooker).**—Tall and stout, nearly glabrous, leaves large, 5 to 7, lobed nearly to the base, the divisions deeply 3 to 5, cleft with narrow, long, acuminate segments, flowers as in

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Cardinal Lathrop

(Sulphur Terebinth)



the last, but larger and more open, bright scarlet with yellow centre, petals somewhat hairy; carpels smooth. (Bot. Mag., tab. 4887; Torrey Bot. Mex. Bound. 30, t. 2, D. coccineum; Torrey Pacif. R. Rep. iv., 62.)

Apparently confined to the mountains south of California—Los Angeles (Wallace) to San Diego.

BOMARIA MULTIFLORA.

SOME years ago there were several beautiful Bomarias in cultivation, but now, probably, not more than half a dozen kinds can be found in gardens, a circumstance much to be regretted, as it will perhaps be long before they are re-introduced. Of the few kinds that remain with us, *B. multiflora*, a flower-spray of which we figure from a plant at Kew, is one of the most desirable on account of its free and almost perpetual flowering character. The colour is an orange-red ground copiously spotted with deep brown. It is, like its congeners, of a climbing habit of growth, and nothing can well be prettier than to see a well-flowered plant of it twining on the rafter of a cool greenhouse, in which



Flowering Spray of *Bomaria multiflora*.

position it thrives admirably, provided the roots are planted either in a small bed of free soil, or in a pot of a size proportionate to the size of the plant. The other kinds we know of, and which will flourish under similar conditions as the preceding, are *B. Jacquesiana*, with large rosy-pink flowers produced in large drooping umbels; *B. Carderi*, a rather new kind, similar to the last and frequently alluded to lately in our columns; *B. oligantha* and *B. Caldasiana*, both somewhat similar to *B. multiflora*, differing most conspicuously in the shade of colour in the flowers. All, like their congeners the *Alstroemerias*, are natives of South America, and are particularly plentiful in the Peruvian Andes, a large proportion of the species, numbering upwards of sixty, being natives of that locality. W. G.

Tar and Pitch Running.—"T. P." (p. 166) may rest assured that lime put into tar will prevent it from running. Newly-slaked lime, and not lumps, should be used, as the latter do not dissolve or mix well with the tar, and the former should be employed cautiously, as if used too freely the tar will dry too quickly and become hard on the brush before it can be applied. From three to four handfuls of lime to a gallon of tar will be found to answer the purpose.—J. JEFFREY, *Rosscarbery, County Cork*.

TREES, SHRUBS, AND WOODLANDS.

NOTES FROM SYON.

The American Holly.—We were pleased to notice a very well furnished old specimen of this in the grounds at Syon. It is about 20 ft. high and somewhat pyramidal in form, but not so pointed as our native Holly. The recent cold has not affected it to the extent of a single leaf. It is a handsome tree as seen at Syon, and had we not so many fine forms of our own Holly would be more valuable. It must be a very hardy tree considering its native country, growing in northern regions where the English Holly would not survive. From what we have seen of it in New Jersey we did not think it would make such a good garden tree.

Climbing Shrubs on Grass.—The practice at Syon of leaving some plants generally trained on walls to grow as free, isolated tufts in the pleasure grounds is a charming one; such plants as the winter-flowering Jessamine, the Honeysuckles, and certain wild Roses and Brambles are particularly suited for such planting, and there are many others. Well placed and well planted, such things are no trouble to the gardener, while they are a great pleasure to everybody else, and may, in many cases, afford plenty of flowers.

Many of the things which cause a good deal of trouble, and very often have a poor effect on walls, are well fitted for this treatment. We noticed some large tufts of the common herbaceous field Geranium planted in the same way; that is to say, allowed to form a group by themselves and wholly let alone, except so far as clearing away the stems in the autumn is concerned.

Digging in Shrubberies.—We are pleased to note that at Syon, where, some years now, the practice of digging and raking the shrubberies has been given up, and with a very good result as regards effect, the Grass is allowed to grow in under the trees, Bluebells and wild flowers growing there too. It is a considerable saving of labour, and year by year the appearance of the whole is better, from the easy and broken outline which shrubberies treated in this way present. It does not mean the total absence of care, which, indeed, must be unremitting in such a valuable collection, but it does mean diminished labour, and leads to a distinctly better and more natural effect, while the roots are undisturbed. In such a case a more open disposition is desirable, and it is pleasanter to step in among the shrubs and trees in any direction on turf than it would be on dug ground. Bold openings and little glades are also possible and desirable in this way, so as to break into the formal outline of the shrubbery—open up its treasures, in fact. There is much to be effected in the improvement of the shrubbery, and we are glad to see a beginning made where there is so much valuable tree life.

A Storm-tossed Cedar of Lebanon.—

Considering the age and stature of the trees at Syon, it is surprising that so little damage has been done by the recent gale and previous terrible Tuesday; the easterly gale on that day, however, partially blew over one of the great Cedars quite near the house, and now a very interesting process of pulling it back again is being carried out by the aid of great ropes attached to other trees in the neighbourhood and by hydraulic and other lifts. The pulling back is being very successfully done, though it involves engineering of a peculiar kind. With the great ropes and other apparatus it is the most formidable operation we have seen carried out in regard to trees. It is pleasant to anyone interested in our finer trees to see the care and intelligence devoted to them at Syon, both in their youth and old age. Even the dullest winter day one is impressed there with the dignity and variety of the tree life.

Neglect of Deciduous Trees.—It is sad while looking at the Wellingtonias after the hard winter, or indeed at any time, to notice the neglect of trees which never wince before the frost, and which really do assume beautiful shapes and stately forms. The Planera, for example, one of the most remarkable deciduous trees, with its peculiar ascending form of branch, is seldom planted and little known, although noble specimens may be seen at Syon, in the Oxford garden, and in the Petit Trianon. Here is a tree which really would make a noble avenue, or group, or single specimen.

Hymenocallis.—This noble stove plant, which we figured in THE GARDEN last year is now coming strongly into bloom at Syon; its large transparent blossoms and fine reed-like habit make it a

valuable addition to our stoves, and valuable aid for indoor decoration.

THE LOMBARDY POPLAR.

PERMIT me to endorse all that Mr. Marnock's cultured judgment and ripe taste has said (p. 81) in favour of this striking tree. To say that wherever it is planted it adds a new and striking feature to the landscape is but common-place praise. It gives it dignity as well as freshness and novelty. Its noble effects on knolls has been well described by Mr. Marnock. Posted on these in a flat or fenny country, it is welcome as a lighthouse at sea to the bewildered mariner. A few well-placed groups of Lombardies lift up the entire landscape into a higher level of art. The Lombardy is almost equally striking in valleys. I have looked down on some noble groups and single trees from bridges, and the effect has been as good almost as gazing up to them from afar on knolls. As a rule they are far too often rowed and isolated. There can be no doubt that Mr. Marnock is right. The trees should be grouped more or less irregularly as to distance and number, but the great thing is to have more of them planted anywhere and everywhere where there is room for them. And they need little room. As Mr. Marnock so well points out, they may be planted nearer to buildings than any other trees, and they look better against bricks and mortar than any others, the Italian Cypress not excepted. I wonder the Lombardy Poplar has not been more planted in cemeteries; it would look infinitely better than the usual run of evergreen coniferous trees so often found in a state of lingering death in such. Its form also admirably adapts it for association with monuments, tombstones, chapels. Most of our landscapes are in want of more Lombardies, and even if in the haste to plant a few should get into wrong places, such mistakes are easily rectified. Few trees grow so fast and with so little injury to other trees as the Lombardy Poplar, while hardly any are more easily cut down. But with the aid of your exquisitely beautiful woodcut, showing at a glance the character of and place for this tree, and with Mr. Marnock's clear and careful instructions, no one can fail to plant his Lombardies right, which it is hoped many will do as soon as the frost permits.

D. T. FISH.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS

Pruning Evergreens.—The best time to prune all evergreens is just before the sap rises in spring, especially if large branches have to be cut off. In dealing with naked, neglected shrubs, the best plan is to cut them down to near the ground, and let them start away from the bottom, again thinning out the weakest of the shoots if too many eyes start. Branches of Hollies will sometimes die back to the trunk if all the evergreen portion or the part clothed with foliage be cut away; and the same thing may happen with any other kind of tree, even in the case of the Willow, if the roots are unhealthy. Cutting off the head of the plant is, of course, a drastic remedy; but if the roots and main stem are healthy, there is no danger attending the operation. Of course flowering shrubs so treated, such as the Rhododendron, for instance, will be some time before the growth gets sufficiently ripened to bear flowers again. When we cut the head off a tree or a plant the sap comes away with a rush, and, finding fewer outlets, the wood for a year or two grows too rampant to form flower-buds; nevertheless, with patience the flowering time will come again. The case of the Portugal Laurel referred to a short time ago by a correspondent that was cut to a fork, and which put out a cluster of shoots where cut, instead of the sap passing along the remainder of the bough, was simply a natural consequence of decapitation. If evergreen shrubs are pruned a little every year they will not become naked at the bottom, but will gradually extend themselves and become annually more valuable and beautiful. This pruning should consist in shortening back strong gross shoots that show a tendency to become robbers.—E. H.

Cluster-flowered Yews (*Cephalotaxus*).—Many Conifers have been browned by the frost, but these retain their natural colour, and look brighter than ever, contrasted with their weather-beaten associates. They form a genus of Yew-like shrubs or small trees—in fact, give one the impression of a superior kind of Yew, as their leaves are altogether larger than those of the Yew, and two of the species more tree-like in habit. *C. drupacea*, a kind in which the leaves are from 1 in. to 1½ in. in length, is the most nearly related to the Yew, and a very graceful tree. In its native countries—China and Japan—this is said to attain a height of 40 ft., but at present it has not reached such dimensions in England. *C. Fortunei*.—This is somewhat darker green, and has longer leaves than *C. drupacea*; still it is not so attractive, on account of its loose rambling habit, as it seldom forms a leader, but grows into a spreading shrub. In this respect it resembles that beautiful Conifer *Thujaopsis dolabrata*,

which is found in its native country in the form of a moderate-sized tree, but here it generally throws up several leading shoots, and only with difficulty can be kept to a single one. *C. pedunculata*.—This is certainly the most distinct and beautiful of all the clustered Yews; its leaves, which are very regularly arranged, are from 2 in. to 2½ in. long and of a dark green colour, while the habit, being much in the way of that of drupacea, gives it an imposing appearance. This is found abundantly throughout Japan, both in a wild state and in cultivation, forming a small tree from 20 ft. to 25 ft. in height.—ALPHA.

Timber Belts.—Mr. Sargent gives it as his belief that the protection afforded to fields by plantations of trees in narrow belts would increase the profits of their cultivation fully 20 per cent. He says: "Such plantations serve as a material check to the natural force of the cold winds from the north, which rapidly lower the temperature, hasten evaporation, and blow into drifts the snow which would otherwise protect the ground with an even covering." He justly adds: "Such plantations would be too limited in extent, and too widely scattered, to have any general influence on climate, or on the flow of watercourses," but he thinks there is no probable way in which cultivators in cold and windy regions could more rapidly increase the products of their lands. Such screens would of course be needed in sheltered valleys, and in estimating their value sufficient distance should be allowed for the extent of the roots of the trees, which are much longer and run to a greater distance than most persons suppose.—COUNTRY GENTLEMAN.

GARDENING FOR THE WEEK.

Pines.—The beds of tan or leaves in which newly-potted plants have recently been plunged should be examined at short intervals, and if there is any danger of over-heating, rock or lift up the pots and replace them loosely until danger from excessive fermentation has passed away. For some time after potting the structure in which the plants are placed should be kept rather close with sufficient atmospheric moisture to support them until they have taken to the new soil, when more air may be given to prevent them from becoming "drawn." When fresh growth has set in examine each pot separately to ascertain whether water at the root is needed, but on no account water indiscriminately, as an excess at this early season might prove injurious. The strongest successions intended for starting 12 months hence may have a range of 60° to 65° at night, 70° to 75° by day, and 5° more after closing with sun heat and moisture. Avoid wetting early started plants when in flower, but damp the surface of the bed and other available spaces, as an excess of dry heat does not favour the setting of any kind of fruit. Give them a temperature of 70° by night, 80° by day, and run up a few degrees after closing. Keep the glass clean and avoid systematic shading, as it increases the size of the crowns and enervates the plants at a time when light is of the greatest importance. If any of the late autumn potted stock is not quite satisfactory shake out and repot in clean pots of the same size, using dry turfy loam as formerly recommended. Pot very firm, plunge in a bottom heat of 85°, syringe after closing on bright days, and shade from sudden breaks of powerful sunshine.

Peaches.—Houses in which the fruit is beginning to swell may have a temperature of 55° on mild nights, 65° by day from fire heat, and 10° more under bright sunshine, with a circulation of air. If water has not been given to internal borders since the first blossoms began to open, a good watering with clear diluted liquid at the mean temperature of the house will benefit the trees and soon work a marked change in the size of the fruit. Disbudding will claim daily attention; commence at the extremities of the most vigorous trees, work downwards towards the base, taking foreright shoots first, and remove small fruit as the work proceeds. Leave weak trees until last, and if they show signs of having been overcropped, pay back that which has been taken from them by extra thinning, and stimulate with warm liquid or good mulching. If Strawberries have been started with the Peaches get them removed without delay; cleanse the shelves and foliage which may have been in contact with them, and fumigate for green fly.

Succession Houses.—Follow up the usual routine in succession houses now in flower. Give plenty of air by night and day, also increase atmospheric moisture as days lengthen and the sun gains power. After this date the fertilisation of the flowers on healthy trees is almost certain, but the operation being brief and simple, it is best to err on the side of safety. Thin the buds from the lower sides of the shoots in the latest houses. Give abundance of air and fumigate before the flowers open.

Figs.—Continue the treatment recommended for early pot trees until we have brighter and better weather, when the temperature by

day may be increased by closing early with plenty of sun-heat. Guard against a check which might prove fatal to the fruit now in flower by giving liberal supplies of tepid liquid as often as may be considered necessary, and mulch with good rotten manure when the active roots appear upon the surface. If space for the reception of water is limited, place bands of lead 4 in. deep round the insides of the rims of the pots, and partially fill with loose rich mulching. Follow up the stopping of gross shoots, thin off badly placed fruit where thickly set, and keep the foliage clean by means of copious syringing twice a day when the weather is fine.

Succession Houses.—Repeat the treatment recommended for early trees, mulch well and water internal borders freely, as Figs when well drained and in active growth are more likely to suffer from the want of water than the application of too much. Maintain a night temperature of 55° to 60°, run up to 65° with fire heat, and 70° to 75° with air when the sun is shining. Keep the young growths thin and regularly trained where they have plenty of trellis space to cover, and stop at the fifth leaf to prevent crowding where fully occupied. Trees in late unheated houses may now be uncovered; wash, dress, and tie, or otherwise train the past year's growths, giving them plenty of room for the full expansion of the foliage, and free ingress of warmth and light, which will add considerably to the temperature of the structure. The trellis in houses of this kind should not be more than 16 in. from the glass, and short-jointed growths which ripen better than strong watery shoots should be secured by means of annual root pruning.

Strawberries.—From this time forward Strawberries will stand a little more heat than has hitherto been recommended for them, but it must be applied during the hours of daylight by closing the lights and ventilators on fine afternoons, when good syringing with warm water will draw the flower-stems well up above the foliage. Re-open the ventilators at night to secure a steady circulation of air at a temperature of 50°. Water freely early in the day and stimulate with clear liquid where plants or flowers show signs of weakness. The general stock of plants will now supply batches for forcing for exhibition or other special purposes, and quality being the first consideration, every operation, trifling perhaps in itself, must be performed almost in advance of their requirements. Timely top-dressing, which encourages the formation of new roots at the collar of the plant, being very important, all late kinds should be looked over to ascertain that the drainage is right, top-dressed with strong loam and rotten manure replaced in cold pits until wanted for use, but tender varieties like British Queen, Dr. Hogg, and Sir Charles Napier will be the better for removal to a moderately warm, airy situation in a temperate house.

Hardy Fruit.—No time must be lost in making up arrears in planting fruit trees where unavoidably delayed, always bearing in mind that tall or heavy trees liable to be rocked by the wind should be well secured to stakes. If possible, the soil should be dry enough to admit of being rammed firmly without becoming adhesive, and every tree should be well mulched with good half-rotten manure. The nailing or tying of Peaches in many places may now be proceeded with, but where subject to late spring frosts it is a safe course to keep them away from the walls until the blossoms get well advanced. Protecting material will, of course, be in readiness for placing over the different kinds of trees as the flowers begin to open. Where time admits, stone fruit trees on old walls should be well washed after they are nailed with strong soap-suds, to which a few handfuls of sulphur may be added with advantage. Look over new Strawberry beds where the ground will bear treading upon; make each plant firm in its place and fill up all vacancies. Mulch with manure as a protection from drought, and sow a little soot between the rows where slugs are likely to become troublesome. If grafting is anticipated, see that all the stocks are headed back and have everything in readiness for use when the sap begins to rise, as nothing is gained by undue haste. The most successful orchard grafters place three-year-old wood on large trees, and work at their calling up to the beginning of May. Examine Figs on open walls, and if heavily covered with straw or Fern, remove it piecemeal, as much damage often follows sudden exposure of the young shoots to bright sun and keen morning frosts. Keep a sharp eye on Plums and Cherries when the buds begin to swell, and drop fishing-nets from the coping to protect from bullfinches. This season they have attacked our Pears and Peaches.

Melons.—The first batch of selected plants will now be approaching if they have not already reached the trellis, and the important aim being the production of vigorous short-jointed Vines capable of throwing out strong fruit-bearing laterals immediately after they are stopped, the use of clear diluted liquid for syringing the surface of the bed, filling the evaporating pans and supplying the roots, must be governed by the strength of the plants, as too much vigour is not conducive to a good "set," and weak attenuated

growths if they show at the first break, produce puny fruit. As I have before stated, the choice of varieties for early work is only second to skilful cultivation, and after trying many kinds, I have not found any better in point of quality and productiveness than Improved Victory of Bath and Turner's Scarlet Gem. For growing on kerbs where fermenting material cannot be brought into use, the scarlet-fleshed kinds, although inferior to the green-fleshed section, are best adapted, as the dry heat and complete control over the roots enable the grower to bring out the full flavour of the fruit. To counteract the parching influence of hot-water pipes and to encourage the egress of roots, we place shallow boxes 2 in. or 3 in. deep beneath the pots, fill them with rich loam and manure, and feed liberally from the time the fruit begins to swell until it shows signs of changing for ripening.

Frames.—If the plants are fit for turning out and the bed continues too hot, 6-in. drain-pipes may be laid horizontally under each hill which should be made very firm, not too large at first unless the soil, rough calcareous turf, is very dry, and the roots should be prevented from striking into the manure by means of large sods placed grass-side downwards. Renovate linings, back and front alternately. Guard against injury from steam by tilting the back lights. Cover well and make frequent sowings for succession.

Cucumbers.—By this time the greater part of the old foliage will have been gradually removed from winter fruiting plants, the trellis will be covered with healthy young growths capable of producing fruit of the finest quality, and the roots will be working freely in the new compost recently recommended. Keep the plants free from insects by copious syringing and liberal feeding with clear liquid, in preference to mulching with manure, which encourages worms; crop lightly, and fertilise the most promising fruit on shy-setting kinds. If the bottom heat falls below 80° add fresh fermenting leaves from the reserve ground; maintain a minimum temperature of 70°, ventilate at 80°, and allow the house to run up to 85° with sun heat after closing for the day. Where a compartment can be cleared out and properly cleansed, the present time will be favourable for making a fresh start with clean young maiden plants of Smith's Frame, or other favourite kinds. The soil for summer culture may be heavier than that recommended for winter, and hills composed of good turfy loam and old lime rubble will give better results than pots.

Frames.—Earth up young plants as the roots appear on the surface, train the growths thinly, stop at the first joint beyond the fruit, impregnate as the female flowers open, and place the most promising in glasses. Although the most trying part of the season is over, we may yet have very severe weather, and to prevent sudden depressions of temperature see that the linings are regularly and alternately renovated with well-worked manure, and always have plenty of dry covering at hand for use at night and during severe storms. Make fresh sowings at short intervals, and throw away pot-bound plants before they breed spider.

Kitchen Garden.—In cold gardens the greatest mistake that one can commit is early sowing, as it frequently leads to the production of weak irregular crops or complete failure, for which the seedman is sometimes unjustly blamed. This season the severe frost, and latterly the heavy rain, having chilled the earth and crippled many of our winter crops, a considerable amount of work will have to be performed before sowing and planting to any extent can be proceeded with, and as the usual preliminaries will have to be gone through, time and quality will be gained by deferring the sowing of seeds until a suitable bed can be made for them. On warm soils a few early Potatoes may be planted, and sets for the general crop will require plenty of room, light, and air to secure tough, vigorous growths before they are transferred to the drills. Fill up and mould early Cabbages and make an extensive planting on good ground for the main crop. Transplant autumn-sown Onions, giving the Italian kinds a warm border, as they will be required for early use. Dress with wood ashes and soot. Sow Parsnips, also Broad Beans and Peas for succession. Give the latter plenty of room and sow Spinach between the rows. Mould and stake early kinds, and prepare a warm border for Advancer and other dwarf Marrows now hardening off in frames. Make another sowing of Carrot, Turnip, Radish, and Parsley on a warm border. Plant Cauliflowers under cap glasses, also in deep drills on south or west borders, and protect with short Yew branches. Fill up Lettuce beds, stir the soil frequently, and dress with wood ashes. Take care of the weakest of these and the Cauliflowers, as they are invaluable for succession.

Forced Vegetables.—Remove Seakale and Rhubarb roots from the Mushroom house to a covered shelter, and protect from frost until the time arrives for making new plantations. Strong roots in the open ground covered with pots or boxes will now come on freely with just sufficient leaves or litter thrown over them to

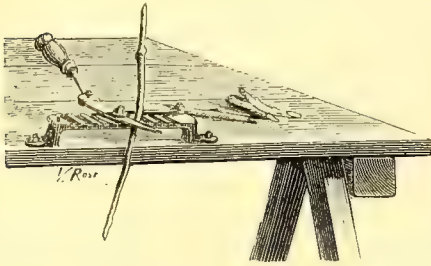


Fig. 4.—Berdaguer's grafting tool.

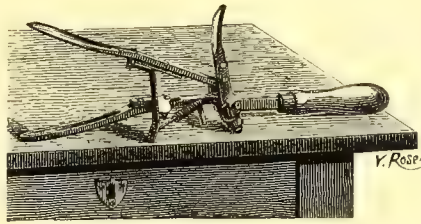


Fig. 5.—Trabuc's grafting tool.

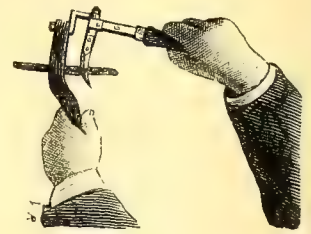


Fig. 6.—Trabuc's implement at work in the open air.

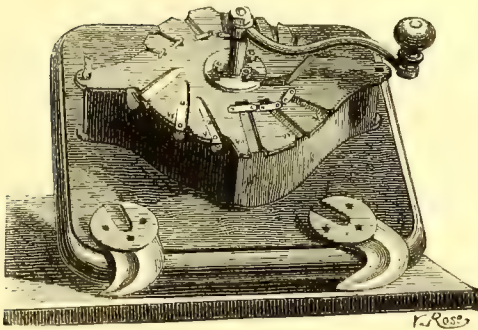


Fig. 7.—Sabatier's implement for grafting indoors.

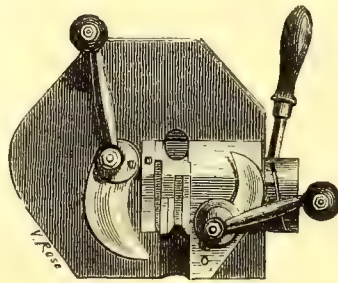


Fig. 8.—Sabatier's implement for grafting in the open air.

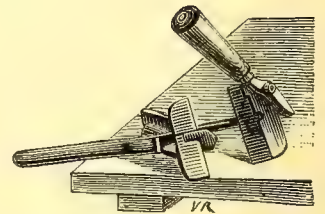


Fig. 10.—Vincent's grafting tool.

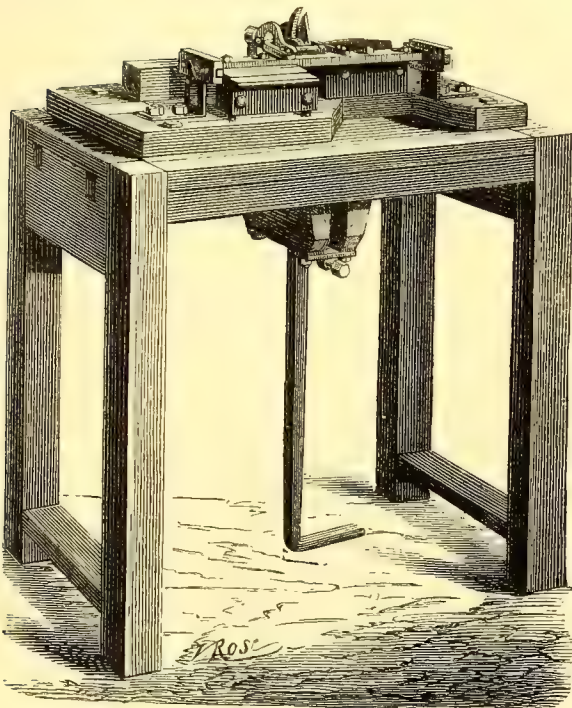


Fig. 9.—Pelaquier's machine.

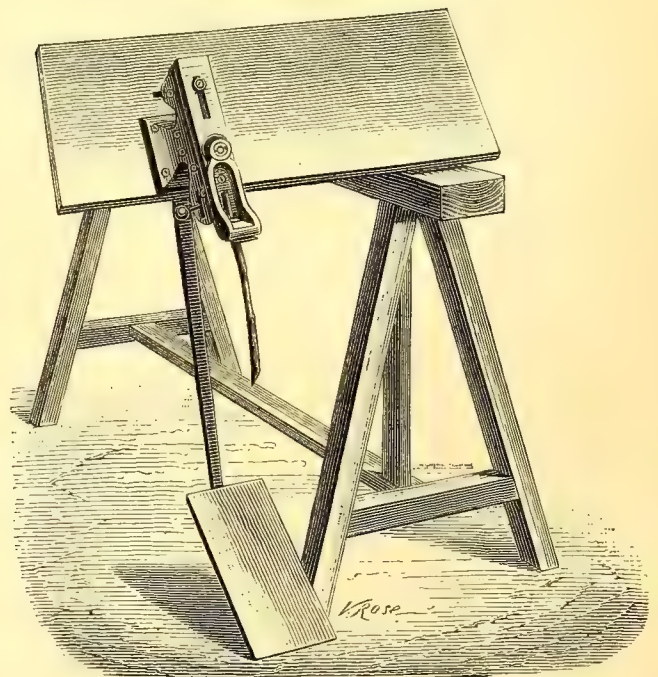


Fig. 11.—Leydier's machine; ground plan.

exclude the air. Clear all the pits and frames that can be spared for successional crops of Carrots, Radishes, and Potatoes. Plant the latter when the growths are 2 in. or 3 in. long. Keep close for a few days, and afterwards ventilate freely to prevent the haulm from becoming drawn. Where a deep, brick pit is at command, a good body of fermenting Oak leaves will give sufficient bottom heat for a planting of French Beans, which will come in useful when their presence in forcing houses is a dangerous nuisance. Sow the Beans in small pots, and transplant when the soil becomes warm. If manure is plentiful this is a good time for making up a Mushroom bed in a close, unheated shed. If a lean-to against a north wall, and shaded by trees, Mushrooms free from maggot may be grown through the early summer months. Beat old beds that show signs of falling off, and give them a good soaking with warm salt water, 4 oz. to the gallon. Plant out Lettuce to make room for January-sown Brussels Sprouts and Cauliflowers. Make another sowing of Tomatoes for succession. Pot off cuttings and place them near the glass in a warm nursing pit.—W. COLEMAN.

GRAFTING IMPLEMENTS.

THE Agricultural Society of l'Hérault having organised at the School of Agriculture of Montpellier an exhibition of grafting implements, and numerous manufacturers having exhibited, we propose to describe the implements that were submitted for inspection, and which are figured in a recent number of the *Revue Horticole*. Since the invasion of the Phylloxera, and the almost complete destruction of the Vineyards in the south of France means have been sought to re-establish those which have been destroyed. Some have had recourse to insecticides, and others have

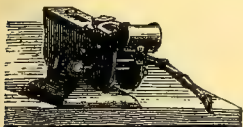


Fig. 12.—Leydier's machine
(elevation.)

preferred to make a trial of American Grapes. The great object being to retain the French varieties, grafting on American stocks has been resorted to. Grafting is performed either on cuttings or on rooted plants, and generally speaking in-doors. The method usually employed is that known in England by the name of cleft

grafting, so that the greater portion of the implements that we are about to describe have been designed with a view of facilitating this particular system. Amongst the implements exhibited on this occasion, and which were constructed for cleft grafting, we will in the first place mention that of M. Petit, of Langon (Gironde). This implement, which has been elsewhere described, has given good results. By its use a skilful workman can make and tie on a graft in a minute, but it can only be employed in-doors. The grafting tool constructed by M. Berdagner, of Lyons, is more simple as regards mechanism, and may be employed both

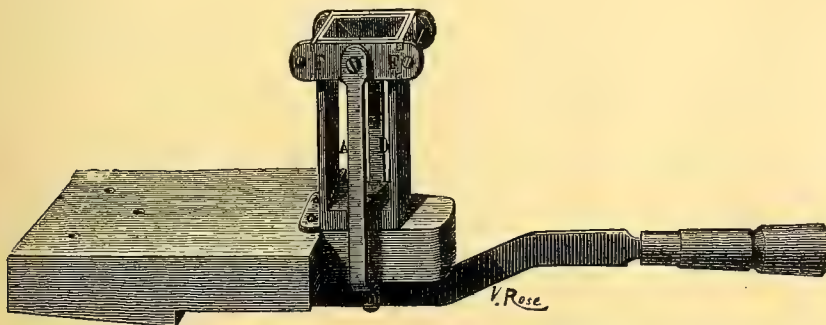


Fig. 13.—Fouque's grafting implement.

in-doors and in the open air. It is composed (fig. 4) of a cast-iron stand, to be fixed on a bench by means of two screws. This stand carries on the left and right-hand grooves into which the Vine shoots may be slid. On this piece of iron two knives work, having the edges opposite to each other, attached to a common centre and turning round on a pivot. In order to make use of this grafting tool, the stock is introduced into one of the grooves on the right hand side, choosing one of appropriate size ;

pressing lightly upon it whilst thus placed, the operator grasps the handle of the blade in his left hand, and drawing it towards him makes a cut in the manner of whip grafting. This implement is fairly simple, and cheap, but does not act very well in the open ground, as it can only be employed for making the scion.

M. Trabuc, of St. Hippolyte (Gard), exhibited a grafting tool of ingenious make, which consists of a simple double-edged blade, the iron stand being replaced by a jointed pair of pinchers (figs

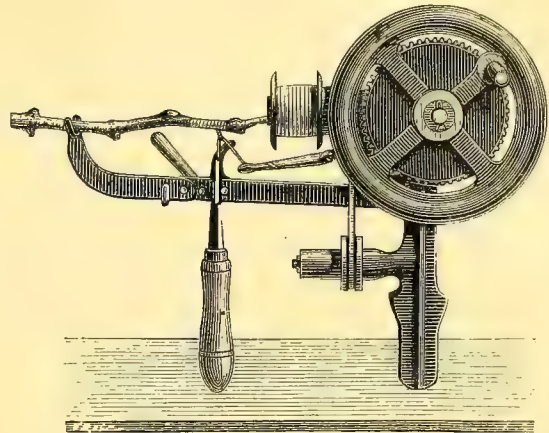


Fig. 14.—M. Gueyte's tying machine.

5 and 6). The shoot to be operated on is tightly held by the pinchers, one end, that which is to be cleft, pressing against a piece of iron hollowed out in the middle and fixed perpendicularly to one of the handles of the pinchers. A guide is attached to one side of this piece, a knife fixed at right angles to and jointed on to the end of the pinchers being able to pass along it. The shoot, being grasped by the pinchers and tightly held, is cut by the knife which passes over the guide. The cut thus made, the guide is detached, and the blade, which is double-edged, makes the cleft on its return journey. The mechanism of this tool is extremely simple, and it may be used either in the open ground or on a bench. A grafting machine of another description is that of M. Sabatier, of Montpellier; it also is designed for cleft grafting. It consists of a wooden stand, carrying grooves lined with copper (fig. 7), into which the shoots are slid, choosing a groove in accordance with the size of the shoot to be operated on. An incurved, double-edged knife works

upon a horizontal surface, and the concave portion of the blade cuts into the side of the branch placed in the groove corresponding with its size and makes the proper cut. On its return journey the convex portion of the blade makes the cleft, the shoot having been removed to a groove bearing the same number as that which served to make the oblique cut, but less inclined, so that the blade cuts into the wood about half-way between the bark and the pith. The great drawback to this machine is that it makes the cut too short, but it would be easy to remedy this by deepening the groove, for then the stock would come into a more upright position, and the

surface cut by the blade would be longer. This implement can only be used on a bench.

M. Sabatier exhibited another implement for grafting in the open ground. It is composed of an upright piece of wood carrying a groove in which the shoot is to be placed and held there by means of a vice worked with a handle. The shoot thus tightly held, a knife fixed on a piece of wood, and turning round on a pivot, makes the oblique cut. Another knife fixed in the same manner effects the cleft by hit-

ting against the nippers which hold the shoot in position. This implement is too heavy and not very portable, but the mechanism of it is happily designed. As a modification of this machine we may mention that of M. Pelaquier, of Toulon (fig. 9). In this case the two blades are worked by the foot by means of a pedal, instead of by hand, and instead of having a rotatory movement they work backwards and forwards. This apparatus carries an automical sécateur for cutting the shoots. In brief, it is just the Petit machine, only that its action is regulated by foot instead of by hand. M. Emile Vincent, of Montpellier, exhibited an implement on another plan, and which commences by making the cleft first. This implement (fig. 10) is in shape like an ordinary sécateur, only that one part of it carries a knife in the form of a scraper, so that when the shoot is fixed by the sécateur this blade penetrates it and makes the cleft. Another knife turning round on a pivot, fixed on the other arm of the implement, makes the oblique cut in passing over a horizontal surface. This machine jags the wood, and the cut is by no means clean, a fact which endangers the taking of the graft. We might mention other tools for cleft grafting, but they are merely guides for making the oblique cut, and have no great practical interest. We come now to Champin's system, which is a modification of cleft grafting. It is carried out in the following manner: The stock, being cut perpendicular to its centre, is cleft at about two-thirds of its diameter, and the thickest portion is cut obliquely, extending the cut to the upper edge of the cleft. The graft is cut in the same manner, and is put on and tied as in cleft grafting. Petit's implement may be used for this kind of grafting, it being only necessary to lower the board some 2 millimètres towards the left, and about 4 or 5 millimètres towards the right, so that the shoot is cut at about two-thirds of its diameter instead of being cut to a point.

M. Leydier, of Lanciaux (Vaucluse), exhibited an implement only capable of being worked on Champin's system (figs. 11 and 12). One end of the shoot is introduced into a cavity, terminating at the lower end by an even surface. By resting the stock against a knife, the distance of which, from the lower surface, is regulated by the dimensions of the shoot, a longitudinal cut is made in it to about one-third of its thickness. This operation finished, there remains above the knife two-thirds of the thickness of the stock that it is desired to graft. A plane, worked by means of a pedal, passes over two grooves and makes the oblique cut. It has been suggested for Vines that saddle grafting be reversed, carrying out the work on a bench, grafting on shoots or rooted plants having about the same diameter as the graft; the stock is cleft in the middle, a graft obliquely cut on both sides being placed in it.

One machine only making this kind of graft was exhibited; it is that of M. Fouque, of Toulon (fig. 13). The apparatus serves to prepare the graft, and is composed of a four-sided steel cage, of which two sides have parallel grooves and double obliquely-cut, wedge-shaped surfaces. In these grooves two transversal blades act simultaneously with a downward movement by means of a lever. Two pressure screws regulate the play of the frame and facilitate dismounting it in order to allow the return of the blades. In order to effect the wedge-shaped cut on the graft the framework is raised up, so as to allow the blades all the space possible. The base of the scion is then introduced into the upper part of the implement and enters the hollow formed by the blades. That done, a rapid downward movement with the right hand upon a lever suffices to obtain a regular and neat wedge-shaped cut. To make the cleft in the stock, a knife having a special central blade, so disposed as to make the cleft exactly in the centre of the shoot, is employed.

Such are the implements of which we have made special note. We might still mention M. Barral's implement for grafting by incision, but this kind of graft does not take easily, seeing the difficulty that exists in making a graft that shall enter exactly into the incision made in the stock. A tying machine was also exhibited by M. Gueyte. This we have ventured to describe, although the results obtained by it are not entirely satisfactory. A bobbin of string or raffia is made to revolve on an axis to which a rotatory movement is communicated by means of a handle carrying a pinion which commands a cogged wheel. The string on the bobbin makes two or three turns on a piece which has a circular movement; one end of the graft to be tied is placed in the bobbin, which is hollow, the other resting upon a fixed support. By communicating to the machine a rotatory movement,

the string winds itself round the graft. When the ligature is completed a knot has to be made, which is obtained by passing the string over a hook. With a pointed knife one turn of the string is taken up and is passed on to the middle of another. The operator draws it towards him and the knot is made, but the tie is not, in general, tight enough.

To sum up, all the grafting implements hitherto exhibited are defective, as a man provided with these tools will not get through more work than when only provided with a knife. During the last year, however, great progress has been made, and we have reason to hope that in a short time new improvements will be effected.

THE INDOOR GARDEN.

MULCHING POT PLANTS WITH MOSS.

I HAVE read with much interest all that has been written upon this subject, and I hoped and fully expected that more of your readers would have expressed their views on the matter. I should be quite prepared to adopt Moss mulching in many cases, but I must confess that I should hesitate to do so in a general way. Some plants, such as the hardier kinds of Palms, Tree Ferns, and some soft-wooded subjects, can scarcely be kept moist enough when they become thoroughly root-bound, especially in the summer time; and I can well believe that a layer of Sphagnum on the soil would be beneficial in preventing rapid evaporation and maintaining the soil in a more uniform state of moisture whilst diminishing the labour in watering. There are, however, many plants which are more or less sensitive to an overdose of water, and I think that in their case a covering of Moss would be sometimes productive of evil, as it would hinder the grower from quickly ascertaining the state of the soil. Sometimes watering has to be entrusted to inexperienced hands, and oftentimes the order has to be given "water only when dry," this being especially the case in winter and during the spring months. To the inexperienced the surface of the soil is a sure guide as to the wants of the plants in the way of moisture; cover it in any way, and watering becomes in many instances hazardous. I always like to see the collar of a plant free and the surface clean; a rapid glance through the house will then suffice for ascertaining the condition of the inmates, and orders may be issued accordingly. There are times when every plant may be safely watered, but at others great caution must be exercised, and each plant has to be watered according to the condition of the soil as indicated by its surface.

I cannot quite agree with Mr. Hovey in his remarks upon the relative size of the pot and the plant. I fail to see that a plant should be less ornamental or imposing when a large head of foliage is attached to a more than usually small body of soil. My opinion is that pots, as a rule, are too large, and detract from the decorative value of the subject. Of course we do not want a plant to be so deficient in a firm basis as to be in continual danger of toppling over; but this assured, we may just as well have a well-developed handsome specimen in a 6-in. pot as in a size or two larger. Foreigners have often told me that we get our plants too quickly into big pots, and this I believe to be true, in many cases at least. Many are so anxious to shift when they would be better employed in administering a little stimulant, and thus really obtain better results at the expense of much less time and trouble. I remember once seeing an extremely fine lot of *Dracænas* grown by the Messrs. Chantrier, of Paris, which well exemplified the value of a large plant in a small pot. I am speaking by comparison, for the plants in question were in 8-in. pots, but were as large as one generally sees in pots two sizes larger. They were, I should say, quite 4 ft. high and clothed to the soil with handsome foliage, which was so abundant that in the case of the drooping-habited *Cooperi* the plants scarcely appeared to be growing in a pot. These plants were admired not only on account of their beauty, but because they produced a much finer effect through being in pots so small in proportion to the head of foliage.

Probably when a pot-plant reaches this stage of development Moss-mulching would be appropriate, for the soil becoming one mass of fibres and the demand for moisture being so great, there would be but little danger of over-watering. My *beau idéal* of a pot-plant is one which by the amplitude of its foliage completely obliterates the pot, a necessary, but also an unnatural looking and ugly appendage. Some plants, of course, by their habit do not admit of this desired consummation, but others do and I think that by a judicious and timely application of some stimulant, and the exercise of more patience in the matter of re-potting much might be done in this matter, and the decorative value of plants generally would be considerably augmented.

J. CORNHILL.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Linum trigynum a Shade-loving Plant.—When I stated (p. 69) that a hot dry atmosphere was death to this plant, I simply wrote from my experience of it culturally. It is the fault of this plant under indoor culture that it is subject to red spider, and a dry hot atmosphere or a place near hot-water pipes aggravates this tendency immensely. It interests me to know that the plant is grown as an outdoor shrub in Algeria, and I can imagine what a lovely object it is there. I see it also noted as doing well out-of-doors at San Remo; although it is an East Indian plant and nearly 100 years introduced, I am curious to know in what part of the East Indies it is found, as this includes rather a large area, and under what conditions it thrives best in its native habitat. The fact that the plant will thrive under a burning sun planted out in the open air in Algiers or Italy is no reason why shades should not suit it best under hothouse culture. Experience teaches us many lessons. I remember once being much brow-beaten on the subject of Vine culture by a gentleman who was fresh from the Rhine, and who had seen Vines growing there in broken stones and the ground roasting with solar heat, while our Vine borders were deep with unctuous earth and a great water-barrel in constant use. Experience also teaches us many paradoxical lessons in the culture of Orchids and other stove plants. I have planted out *Linum trigynum* as an experiment in the south of England, and found it to grow tolerably well in company with such plants as *Justicia formosa*, *Eranthemum pulchellum*, *Libonia floribunda*, and many more which do well out-of-doors from June to October, and which make much more robust growth, healthier and greener foliage than they would under glass. A plant with its roots in the earth with the sky for a roof and the temperature satisfactory is altogether placed under more favourable circumstances than the same plant in a pot under a glass roof, even if the temperature be equally the same.—HIBERNIAN.

Begonias for Back Walls of Warm Houses.—For covering back walls, such *Begonias* as *B. fuchsioides*, *B. foliosa*, and *B. insignis* are invaluable. Those who have not seen them planted out in a well prepared border would be astonished to see the growth which they make in one season. Part of the back of the wall in the conservatory here is covered with the kinds just named, and they are the admiration of all who see them. *B. fuchsioides* and *B. foliosa* are always in flower. We treat them liberally, and this induces continual growth and the constant production of flowers. We also find them to be very useful planted against the back walls of Vineries. They are free from the attacks of insects, and most useful as regards the production of cut flowers in the winter. We can cut bushels of the beautiful *B. insignis*. The back wall of our Vinery is now all aglow with its lovely pink blossoms. *B. nitida* is a grand variety, but more tender than those previously mentioned. In an early Vinery it produces an abundance of lovely flowers.—J. ALLSOP, *Dalton Hall, Hull*.

Staphylea colchica for Forcing.—This is one of the best shrubs for early forcing with which I am acquainted, and doubtless when better known it will become as popular as *Deutzia gracilis*, for it is equally free in its habit of flowering; it comes into bloom at an early date, without very much fire heat, and has the advantage of having very ornamental foliage of a bright glossy green. The flowers, which are pearly white, are borne in clusters, and the plant blossoms freely in a very small state. We have some in 5-in. pots with every shoot laden with flowers, and very pretty they are for vases or other decorations indoors, or the blooms are well adapted for bouquets. It is at present somewhat scarce, but I feel sure that it will soon be found in every garden where white flowers are in demand in the spring months. It makes a good companion for the *Deutzias*, *Prunuses*, *Lilacs*, and other flowering shrubs that are forced into bloom early, and it will flourish under similar treatment. The main point to aim at is well-ripened wood, and the only way to insure this is to encourage early growth, which must be ripened off without any severe check. After flowering, it should be removed to congenial growing quarters to perfect its growth, and be gradually inured to more air as solar heat increases out-of-doors, until it can be plunged in the open ground in some sunny position, where it can fully perfect its growth, when it will flower abundantly for years, even in small pots, if well supplied with liquid manure.—J. GROOM.

The Club Moss as a Basket Plant.—Have any readers of THE GARDEN ever seen the common Club Moss (*Lycopodium clavatum*) as described by Mr. Moore in "Newman's British Ferns"? He says: This plant makes a beautiful object when cultivated in a greenhouse and suspended from the roof. I have seen it in such situations with branches 3 ft. to 4 ft. long flowering most abundantly and having a peculiarly imposing appearance? And so no doubt it would have, as anyone would believe who has seen its luxuriance on some of the Cumberland mountains, but I never could induce it to take root

under cultivation, nor could I ever meet with anyone who had grown it successfully until last year, when I saw it growing beautifully in a pot in the garden of a lady near Windermere. Success requires patience, the plan being to take up a well-rooted plant with the turf in which it grows, and having established it in a pot to pluck out blade by blade all the Grass and other vegetation with which it is surrounded.—C. W. DOD, *Edge Hall, Malpas, Cheshire*.

Plants to Grow in the Shade.—"B." asks for a list of these; I sadly want the same myself. Let me say, however, that I have a large plant of *Raphis flabelliformis* planted out right under a big broad-headed Tree Fern, and packed around on every side with big Palms, *Ficuses*, *Jambos*, and the like, and although in this dense shade and choking place it grows and flourishes. *Aspidium falcatum*, planted out in almost as adverse circumstances, does well. The smaller Palms and small specimens of large Palms, if the house be kept at intermediate, rather than high, temperature, will live well enough under the thick shade of big-headed relatives, provided they get a little more breathing room in summer. Hosts of running *Philodendrons* and *Anthuriums* are at home under such circumstances in warm quarters. *Smilax macrophylla* if planted out runs riot in a shady place. Green-leaved *Dracenas*, like *Haageana*, *ensifolia* and *fragrans*, grow well in the shade. Many plants will thrive if planted underneath the shade of other plants provided their tops reach up into the light. But what I wish is a list of plants of compact growth that will thrive and live, year after year, under the shade of Tree Ferns, big Palms, and Bamboos, and not be merely the ghosts of plants.—F. W.

Erica melanthera.—Seeing reference made to this useful Heath (p. 175), allow me to bear testimony to its great value as a winter-blooming plant. I have grown it for a good many years, and it is most useful, not only as a conservatory plant, but for cut flowers. Our plants were grown in pots 10 in. in diameter and 12 in. deep. In this sized pots they assumed the proportion of bushes, about 1 yd. high, and as much through every year. I have cut from them large quantities of sprays from 12 in. to 18 in. long, which, when the tiny blooms are open, are most beautiful mixed with other flowers. The plants were potted firmly in good, sound peat, and had an abundant water supply while growing. During the summer they were grown in a low span-roofed pit, very close to the glass, with plenty of air circulating amongst them night and day; they were never shaded from the sun, and in this position the growth was firm and sturdy, and the wood well ripened by the autumn. The fact of the growth being well matured is a sure guarantee of an abundance of bloom. On the approach of winter they were moved into the greenhouse, where they opened their beautiful flowers towards Christmas, and continued in perfection for two months.—Q. R. T.

Grasses in Pots.—Of the various kinds of Grasses, such as *Brizas*, various species of *Agrostis*, *Lagurus ovatus*, and others, charming masses may be obtained even in 5-in. pots. The first sowing may be made about the middle of February, and as the plants should remain in the same pots till they flower, care should be taken to sow the seeds about the required thickness, as although thinning may be practised to some extent, yet that operation is detrimental to the remaining plants. For large kinds such as *Briza maxima*, about 12 in a pot will be sufficient, while in the case of the small *Agrostis*, a much greater number may be allowed to grow. When sown a frame will be the most suitable place for them, and as soon as germination takes place the lights must be kept off whenever possible to insure a sturdy growth; afterwards they should be treated as other annuals under similar conditions, but they must never be allowed to get thoroughly dry, as if so the foliage is liable to turn yellow and die off. Moderately stiff soil will be found to suit them best, and they will be greatly benefited by a little manure water at intervals.—ALPHA.

Streptocarpus biflorus.—This handsome plant is seldom met with, although introduced a great many years ago by Hook, from the south of Africa. Its leaves, two and sometimes only one in number, spring directly from the bulb and lie flat on the soil; they are about 8 in. or 10 in. in length, and oblong, dark green and sometimes spotted with red. The flower-stalks grow from 1 ft. to 1½ ft. high, and bear from ten to sixteen blooms, in pairs, resembling in shape and size some of the finest *Gloxinias*, they are of a vivid blue, with yellowish centre and spotted with dark blue. It will succeed in a greenhouse, shaded from full sunshine, and it likes to be continually moist. It may be propagated by bits of the leaves, like *Gloxinias* and *Begonias*, and also by seed. Amongst all the catalogues I receive I have only found this plant in those of M. Van Houtte, of Ghent, and Haage and Schmidt, of Erfurt, showing that it is by no means plentiful. Those fond of obtaining novelties might, I think, cross this pretty plant with others nearly related, such as

with some of the Gloxinias; some distinct hybrids might be the result.—JEAN SISLEY, *Monplaisir, Lyons*.

Black Fungus on Camellia Leaves.—The black deposit of which "F." complains is more likely to result from scale than to be of parasitic growth, as I find whenever scale attacks Camellias the leaves are always affected in the way in which "F." states. I have some plants now which look as if ink had been smeared on them in places, and as soon as I see such appearances I know what to look for as the cause, and set about cleaning at once. We find scale at this season in long, irregular, string-like patches, of a white or creamy colour, filmed or coated over, under which coating, if examined by a microscope, may be seen thousands of the miniature insects in different stages of development, and these if left soon spread themselves over a house. A syringing with paraffin and water, in the proportion of a small teacupful of the former to one of the latter, is the quickest remedy, and after applying this the plants should have a good rinsing with the garden engine, when the foliage will shine as if polished.—S. D.

Tree Carnations as Climbers.—Allow me to point out the desirability of growing perpetual Carnations trained on walls or pillars. I have a bed of Carnations under a south wall which is trellised for Peaches; on these trellises I grow winter flowering Carnations for summer bloom, pinching off all offshoots till the stems are 3 ft. long, and not allowing them to flower. I then encourage offshoots, and train them out and upwards. They require a little protection at the root in winter, but make a fine show in summer, about a week after the show varieties are past their prime. The best sorts for this treatment are La Belle, Miss Jolliffe, and Souvenir de la

correspondents advised that pot-bound plants, at least many kinds, should have the mass of roots touching the pots all clean shaven off with a sharp knife before they were repotted. Heaths, Azaleas, and such like plants were, I think, mentioned. Is this plan commonly practised? and do you recommend it?—H. BURNBY, *Wavendon Rectory, Woburn*.

Cinerarias from Seed.—I have grown Cinerarias from seed for several years with the most satisfactory results. The flowers are this year unusually good and the plants very strong. There is also a good variety of colour. I do not grow named varieties, as I consider they are not so good as many I get from seed. If "W.C." (p. 173) is in my neighbourhood I shall have great pleasure in showing him the plants just referred to.—CHAS. RANN, *Handcross Park, Crawley, Sussex*.

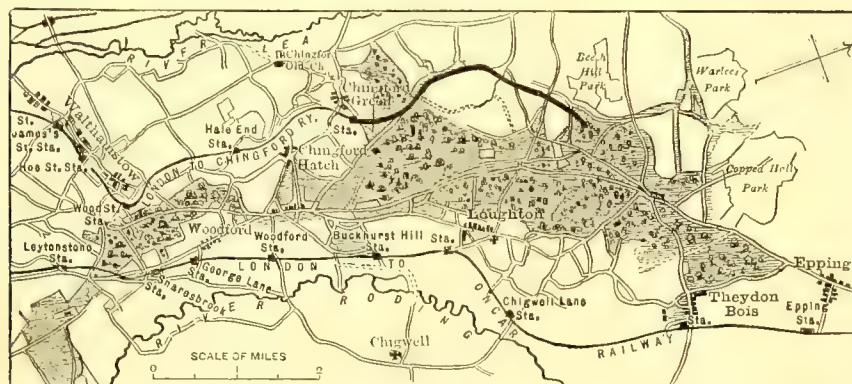
EPPING FOREST AND THE NEW RAILWAY.

WE have on more than one occasion protested against any interference with this Forest by the Gt. Eastern Railway Co., and have shown that sufficient railway accommodation already exists in connection with the Forest. We find, however, that the proposed new line, the effect of which will be to destroy one of the most beautiful parts of the Forest, though strongly opposed, nevertheless finds favour with a certain portion of the Corporation; therefore, the Metropolitan Board of Works has been memorialised on the subject, and great exertions are being made by Mr. Francis G. Heath and others to stop, if possible, the formation of the new railway.

Under these circumstances we have thought it well to place before our readers the accompanying map, on which the black line shows the course of the projected mutilation.

The memorial in question "showeth that a Bill now before Parliament, promote by the Great Eastern Railway Company, seeks—for the purposes of an extension of that company's line from Chingford to High Beech—to appropriate upwards of seventy acres of Epping Forest. That notwithstanding that Parliament, by its Act of 1873, decreed that Epping Forest should be preserved for ever, not only as open space, but in its natural aspect as a forest, for the enjoyment of the public, and that its legally appointed conservators should 'by all lawful means prevent, resist, and abate all future enclosures, encroachments, and buildings, and all attempts to enclose, encroach, or build on any part thereof,' the Committee of Conservators appointed under the Act by the Corporation of London have announced

their intention of supporting the proposal of the Great Eastern Railway Company. That the carrying out, for the objects of the aforesaid railway, of the proposals in question will effect the destruction and disfiguration of considerable portions of the magnificent recreation ground which the Legislature intended to secure for all time for the use and enjoyment of the inhabitants of the metropolis. That abundant facilities of access to Epping Forest are at present provided by two existing lines of railway, the one running from London to Hale End and Chingford, and the other from London to Buckhurst Hill, Woodford, Loughton, Theydon Bois, and Epping. That High Beech—to "open up," which is the proposed object of the promoters and supporters of the aforesaid railway scheme—is already within a less distance than two miles of the Loughton Station of the Great Eastern Railway, and that greater "facilities" of access to this part of the Forest than those which at present exist are wholly unnecessary. That the aforesaid railway, besides actually destroying a considerable portion of Epping Forest, would disfigure and seriously injure other portions of this invaluable recreation ground, and thus would dangerously affect the interests and the enjoyment of the public. That the projected appropriation and mutilation of this Forest are opposed both to the letter and to the spirit of the Epping Forest Act of 1878. And that in addition to the direct and immediate injury which would be inflicted on the public by the passing of the aforesaid Bill, other evil consequences would ensue from its adoption, for a dangerous precedent would be created that would inevitably lead, at no distant time, to the appropriation, mutilation, and disfiguration—for similar and (though plausible) equally transparent objects—of the New Forest, of Dean Forest, and of other of the large and magnificent recreation grounds of this country. The memorialists, therefore, urgently appeal to the Board of Works, as a body representing in the largest sense the interests of the metropolitan public, for



Epping Forest: showing proposed mutilation, and also present railway communication,

Malmaison. They may be trained from a pot round the conservatory pillars in the same way.—GIROFLE.

Solomon's Seal and Variegated Funkias Forced.—A beautiful object just now is a fine mass of Solomon's Seal, which, charming as it is out-of-doors, is, when forced, even more so, the whole plant having a fresher and cleaner look than when outside exposed to all kinds of weather. Variegated Funkias, too, have a cheerful appearance indoors at this season, and are well worth the attention of those who have to maintain a certain amount of gaiety, even during the dulllest months.—ALPHA.

Chinese Primroses, Hyacinths, and Camellias.—How should I treat *Primula sinensis* after it has flowered in order to save it for next year? and how can I multiply *Primulas* by cuttings, and at what season? also when *Hyacinths* go into numerous little offshoots, how can the latter be utilised for propagation? Are these offshoots worth anything? or is it better to pinch them off to save the parent bulb? Which is the best and quickest way of multiplying *Camellias* by cuttings?—E. B.

Daphne indica.—In reply to "F. J. J." (page 191), who asks for information respecting the best mode of treating this *Daphne*, my advice is to grow it in pure fibry loam, to keep it well pot-bound, to give it as much hot sunshine (after it has completed its growth in summer) as possible, and to be very sparing with water. Under the above treatment I have had a fine specimen of this valuable shrub in my cool greenhouse for the last two months loaded with blossoms, and filling the place with its delicious perfume.—H. BURNBY.

Mutilating the Roots of Pot Plants.—I saw in THE GARDEN a year or two ago a suggestion in the matter of repotting certain plants which I should like to hear more about. One of your

assistance against the projected mutilation of Epping Forest; and they express the earnest hope that the Board will offer to that project the most vigorous and determined resistance.

At the Metropolitan Board meeting on Feb. 4, Mr. Runtz moved that the memorial be referred to the Works and General Purposes Committee. He said he very much regretted it should be necessary to ask for such a reference. He supposed no question had agitated the public mind more than the preservation of open spaces, and he was surprised that so soon after the Forest had been secured to the public their fears should have been aroused. It was not an uncommon thing for railway companies to invade open spaces, and it was not a new thing for the Great Eastern Company to do this. He referred particularly to the attempt to go across Hackney Downs. If a railway were absolutely necessary through Epping Forest it could be so made as not to interfere with the beauty of the Forest. This Board was the body appointed to preserve open spaces for the metropolis. The Corporation had obtained power to preserve open spaces outside of the metropolis. It was the duty of the Board to protest against the growing practice of the invasion of open spaces by the railway companies. He was very sorry to find the conservators were doing what in his judgment they had no right to do, for by Act of Parliament they were prohibited from selling, using, or alienating any part of the Forest acquired for the public benefit. He was surprised that an arrangement had been made with the sanction of the conservators to get rid even of ten acres of the land. Mr. Munro seconded the motion. He said the Corporation were deserving of the thanks of the people for what they had done in acquiring the Forest for the public good, and he was never more surprised than when he heard that they were parties to a scheme, the effect of which would be to rob the people of some acres—he did not care how many—of the land thus acquired. If the conservators were to make a roadway from Chingford to High Beech along which country conveyances could travel for a fare of about 2d. each way, it would be liked much better by the public than a railway.

At the Metropolitan Board meeting on Feb. 11 the following resolution was carried on the motion of Mr. Runtz: "That the solicitor be instructed to prepare a petition to the House of Commons, praying that no part of Epping Forest may be allowed to be taken for the extension of the Great Eastern Railway in the manner proposed in the Bill now before Parliament, and that the chairman be authorised to affix the seal of the Board thereto, and that upon the said petition being sealed it be presented to the House of Commons."

THE BEAUTY OF VEGETATION IN THE TROPICS.

THIS is no doubt very beautiful—beauty of a very glorious kind. I do not remember a single painting of tropical scenery that did not nearly knock me right off my feet. Intense light and brilliant colour are, however, not easy to represent in pictures, and all attempts to give any adequate idea of the vegetation of tropical regions which I have yet seen are so glaring that one must perforce think them failures, and sigh for a bit of a Hawthorn branch, or a Primrose by old William Hunt, a square inch of whose work is to me priceless, most precious indeed, more so than a square acre of any pictures of the Tropics I ever saw. I never liked the most beautiful Poinciana. If you take a big plant of the common Maiden-hair (*Adiantum cuneatum*) and stick among its fronds a lot of trusses of a bright scarlet zonal *Pelargonium*, you have some likeness of *Poinciana pulcherrima*, a small tree with Acacia-like leafage and scarlet flowers. The much-talked-of *Amherstia nobilis* as seen in eastern gardens, viewed at a distance of 100 yards, is about half as effective in colour as an Apple tree in flower.

One of the finest of all tropical trees is *Lagerstroemia Reginae*, with the port of a shapely English Elm, Walnut-like leafage, and enormous Horse Chestnut-like spires of purple flowers; *Bauhinia Kochiana* drapes trees here and there with wreaths of vivid scarlet flowers; and another species with yellow flowers reminds one of our common Honeysuckle.

Apart altogether from flowers, the colour beauty of the Tropics is marvellous, and luxuriance of growth and exquisite form are additional attractions. What a native of Europe, prejudiced by early memories, especially notes as absent are the familiar sheets of colour on the hillsides as given by Gorse and Heather at home, and the absence of colonies of dwarf flowers in the woods. One reason for this may be the height and density of the trees. Man cuts a clearing for his hut; everything else that desires fresh air and sunshine must climb high for it. Dwarf-growing plants have to exist at a disadvantage in wild lands. In Europe it is possible that pastoral pursuits, if not agriculture, have favoured the

increase of the dwarf-growing plants of the lowlands. All the plants of our fields and hedges must have experienced, to some extent, the ills and benefits of cultivation for ages past. Some plants enjoy cultivated ground. On the other hand, modern drainage has quite changed the character of the wild flora of many whole districts in Britain.

Of course there are many beauties in tropical vegetation that compensate, and that amply, for what one misses in the way of bosky clumps, and sheets, and masses of homely flowers; an acre or two of the great leaves and rosy flowers of *Nelumbium speciosum* in a meadow of the Water Fern (*Ceratopteris thalictroides*) makes one forget even Battersea Park, for example. The sight of a golden sea beach fringed for miles with stately Cocoa-nut Palms is a new sensation for those who have only gazed in wonder at the solitary specimen which fruited at Syon House. To see a real wild Palm, a clump of Bamboo, a grove of Tree Ferns, or even a glade full of Bananas must always charm those who have studied tropical vegetation under glass roofs, to say nothing of the beauty of Ferns and Orchids and the thousand and one other interesting plants which struggle as pigmies among the giants in a warm land. It is not want of colour, but rather want of relief which one soon begins to desire in the Tropics. It is all bluish and giggle with Nature there compared with her repose in winter, brightened by her seasonable blush in spring, flush of summer, or glow of autumn with us. Hence when the glorious novelty wears off, the innate prejudice in favour of one's own clime and one's own flowers returns with all the force or emphasis due to a momentary forgetfulness of them, for who can resist taking our own flowers and those of similar climates as a standard of comparison for those less well known?

Apart, however, from the colour-beauty, or the grace and luxuriant plant-life of a wild tropical land, not a little of the pleasure which a traveller experiences is due to the boundless expanse of mountain and plain over which he may roam as free as the native animals. It is something to get clear of stone cities, and railways, and hotels, and postmen, and the threatening letter boards, and the spiked railings which flank our own free highways. "Free as a bird" is a commonplace expression, but a whole world of meaning was meant by the original inventor of the phrase, and a good deal of bird-like freedom is one of the enjoyments of a wild country. If a love of plant-life and plant beauty in all its phases be added thereto, so much the better in all ways.

F. W. B.

THE KITCHEN GARDEN.

MUSHROOM FAILURES.

THERE are several probable causes for these, which may be summarised thus—the quality and heat of the manure used, the quality of the spawn, the temperature of the house, and perhaps the character of the soil used for casing the beds. First, as to the quality of the manure. Presuming that the term draught means farm horses, they may possibly be low-bred, in low condition, and bean or hay fed with few or no oats; if so, such stuff as their droppings lacks sufficient stamina to grow good Mushrooms; so the failure may lie in the material. Soil or no soil with the manure would affect the result but little. Droppings from well-fed high-bred horses may be said to form the very keystone of the arch of Mushroom growing. Only last week I was consulted in a case where a first-class gardener was expected to supply Mushrooms in plenty from a single garden horse indifferently fed. The thing was impossible.

The manure, such as it seems to have been, was too hot at the time of spawning; 87° is at least 17° too hot, from 60° to 70° being the safest, surest spawning temperature. The appearance of "G. B.'s" beds point to an excess of heat at spawning as the most probable cause of failure. A high temperature often destroys the true spawn, or develops spurious spawn throughout the manure, that may result in Toadstools, or merely waste its strength in a network of tantalising Mushroom-scented mycelium, or the spawn may be at fault. It is dangerous practice to have it lying in the damp, or in the atmosphere of a Mushroom house. The mycelium of good spawn should also be white, not blue; the latter colour generally denotes that the spawn is dead. Neither should the threads be too pronounced; a great deal of purchased spawn is overdone. Novices think the more pronounced the mycelium the better the spawn. This is quite a mistake; the mycelium should be in embryo, ready to grow under favourable conditions. If too pronounced, it dies in the spawn, and cannot be made alive again under the most genial and fostering conditions. The appearance of "G. B.'s" beds is no certain proof that his spawn has run. The white threads referred to often spring up in places from the

manure used, and have no more relation to the spawn inserted than Tenderen steeple with the Goodwin Sands. The temperature of "G. B.'s" Mushroom house is too low. From 60° to 65° or even 68° are suitable temperatures for Mushrooms. They will hardly grow in a temperature of 51°, that of the bed on the ground floor, and if they did grow they would probably take quite fifty days to come up in such a low temperature, while six weeks or forty-two days may be accepted as an average time for Mushrooms under favourable conditions. "G. B." had better, therefore, try our temperature for a fortnight before disturbing his beds. Heat from a stove is not good for Mushrooms, and he should use evaporating pans to genialise the atmosphere. Failing these, he should cover his beds with 6 in. of clean straw or hay. It would also be of use to introduce a dozen barrowloads or so of manure in a state of gentle fermentation. The genial heat would raise the temperature, and is one of the best means within reach of cultivators of making lazy spawn develop into a full crop of Mushrooms. Possibly, too, the fault may lie in the dryness of the casing soil. If this were at all worn out, as well as dry, the spawn might fail to run in it to any good purpose, as the mycelium of Mushrooms is slow to bite suitable soil, and not seldom when they run into dry earth they seem to make up their mind to possess it full and continue in the mycelium state for ever afterwards. If the surface soil is too dry it might be soaked with water at a temperature of 75°, though the watering of Mushroom-beds in this state is a kill or cure recipe not to be adopted unless as a last resource. Should the mycelium have over-run the surface soil much, carefully rub it off with the hand. The spawn seems to understand this rough hint, that not its threads, but Mushrooms are desiderated, and they often spring up with great alacrity on the heels of such hard dressings.

Perhaps "G. B." will try these suggestions and report the result. Should they fail he cannot do better than begin afresh on the lines here suggested, and more fully described in previous numbers of THE GARDEN.

D. T. FISH.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Exhibition of Vegetables.—Since I wrote (p. 158) respecting Mr. Gilbert's proposed exhibition of vegetables, the Manchester Botanical Society has issued the schedule of prizes offered at its exhibition to be held in August next. There I find that not less than £45 is offered for vegetables, in three classes, Potatoes included, so that my suggestion that the Gardeners' Vegetable Exhibition should be held at Manchester looks very much like sending coals to Newcastle. Perhaps it may be worth considering whether the International Potato Show at the Crystal Palace would not be a suitable and advantageous occasion on which to hold the show of garden vegetables. It is certain that the Crystal Palace Company would offer every facility to the promoters, and would perhaps give a small pecuniary contribution towards the prize fund. Many who exhibited at Manchester in August could again exhibit in London a month later. At the former place the collections are to consist of 20 kinds and 10 kinds; at the latter place 12 kinds and 8 kinds would probably produce more competition, whilst there would be at the Crystal Palace an immense number of spectators, a desideratum worth attention.—A. D.

Certificated Potatoes.—I have been looking over the names and descriptions of those given in THE GARDEN (p. 196), and I am astonished at the high recommendation attached to most of them. Knowing them all by leaf when growing, appearance when dug, and flavour when cooked, I am able to say that with us not one of the kinds named ever came up to the description given of them; and I know many more who have the same to say of them. I do not mean to say that they are small croppers, or that their appearance is poor, as it is solely in reference to these points that they gain patronage; but as regards flavour there is not one really good variety named in the paragraph in question. Who ever tasted a really perfect Climax, Bedford Prolific, Radstock Beauty, International Kidney, Vermont Beauty, or American Rose? We have grown them all for some years, in hopes of doing something with them, but as soon as ever the Rocks, Regents, Champions, and Victorias come from the farm, they will have none of our fine-looking garden ones at table. If those who have granted certificates to Potatoes were only a little more cautious and sure of the eating qualities of many of them, there would not be so many certificates awarded, nor people deceived by kinds possessing that distinction. In whatever we grow for eating, flavour should, in my opinion, be placed first; but in the case of Potatoes this rule seems to be reversed.—CAMBERLAN.

—The list of these (p. 196) is not quite perfect. Carters' select Scotch Champion was awarded a first-class certificate by

the Royal Horticultural Society. Will you kindly mention this, and oblige, JAMES CARTER & Co.

Perpetual Spinach, or Spinach Beet.—This hardy plant comes in very usefully as a substitute for ordinary garden Spinach when the latter is cut up through severe weather. We generally sow a good-sized bed of it in summer, rather thinly, as a safeguard against any failure of the ordinary Spinach; and, after such visitations of frost as we have had for these three winters, it well repays the small amount of attention which it requires, and which is simply keeping it free from weeds and thinning it in the drills.—J. G., *Linton*.

Tomatoes as Perennials.—Although the edible Tomato is commonly regarded, or at least treated as an annual, I have a plant of it which I grew from seed in the early spring of 1878 which was very productive in 1879, and also last year, 1880, and it has now fruit on it with the prospect of bearing and doing equally well this year. It is placed in a house kept at a moderate heat throughout the year.—G. B. B., *Swansea*.

THE FRUIT GARDEN.

FRUIT CULTURE FOR PROFIT.

Grafting Compositions.—Various complicated mixtures have been recommended for excluding the air from the wounded surfaces in grafting, but for all ordinary purposes clay or brick earth, with a third of its bulk of manure, a handful or two of chaff from cut hay, all well beaten and mixed with water till they assume a suitable paste-like consistency will do as well as more elaborately prepared mixtures. As to applying it, first take a small lump of the clay and rub it well into all cracks where any part is exposed, smearing plenty at the same time over the folds of the matting used in tying; then mould a lump into a sort of hollow cake and apply it to the point of junction between graft and stock so as to envelop the whole of the wounded parts extending 1 in. or so up the scion and reaching well down the stock to keep out the air there also. The whole must be well fitted, and smoothed, dipping the hands into a vessel of water kept near for the purpose. If dry weather follows immediately after, all cracks as I have said must be filled up but a handful of Moss tied over the clay will prevent cracking.

Cuttings.—Some kinds of Apples will strike readily from cuttings. I have often seen this done and I have thrifty little bearing trees that have been propagated in this way. The most easily rooted are the Codlins, the Burr Knot, Oslin and Kentish Fillbasket. Quite large pieces are sawn off and planted firmly in a cool border. It has often struck me that the Codlins would make excellent stocks for less fertile kinds. In this way anybody might soon establish a miniature fruit garden of small Apple trees quite as useful and as interesting as could be had by using the real Paradise stock and with the same surface-rooting proclivities. Pieces about as thick as one's finger could be sawn off and used for this purpose; anyone having an old orchard to prune might try other kinds, giving preference to those cuttings that possess at their base a rough warty-looking knob, as they root with greater certainty than others not furnished in that way.

Apple Trees for Ornament.—Many dislike planting fruit trees in ornamental grounds, but a group of standard Apple trees of the bright rosy kinds, a cluster of towering Cedars or Scotch Pines in the background, but not too near, and a foreground of low shrubs from which spring out here and there isolated groups or single specimens of Cypressess, Junipers, or other spiral growing plants of distinct character, would give a pleasant and striking effect to many a meaningless shrubbery. If well cared for the fruit trees would be objects of ornament at all seasons, even when leafless. Look at a healthy, well-balanced Apple tree occasionally, from the opening of the new year, and note the gradual swelling of its buds till they burst out in all their matchless beauty of pink and white in May. Then watch the career of the young Apple, its hair-breadth escapes from many insect enemies, until the sun in August has brightened its cheek with a rich glow of colour, and it must, I think, be acknowledged that fruit culture ought to inspire more interest and enlist more sympathy than it does, and one of the chief ways of effecting this would be to plant in prominent situations, so that all may see how beautiful well-arranged groups of fruit trees are. A fruit garden or pleasure need not

be arranged on any formal system, and where the soil was lacking in depth or the subsoil bad, the soil from the spaces between the groups of fruit trees might be laid over the beds for the latter, so as to form gently-swelling mounds. On these raised mounds the trees, from the greater depth of soil and more efficient drainage, would make better and cleaner wood and foliage than they otherwise would do, and would consequently bear more and better fruit. If fruit trees could be permitted to come within the ornamental precincts, a way of forming tasteful groups, so as to make the most of their ornamental features and at the same time tone down or relieve anything in their growth that was gaunt or bare, would soon be discovered, and the impetus which this would give to fruit culture would be appreciably felt.

Gathering and Storing.—When fruit parts readily from its stalk it is generally ripe enough for storing, but all late-keeping kinds should be permitted to hang their full time or they will shrivel. Another indication of ripeness may be found on cutting a fruit through the centre. If the seeds or pips are dark-coloured the fruits are generally ripe enough for gathering. There are also general indications of maturity about the tree itself; its growth and foliage tell the experienced when it has done its work. The Apple chamber must be frost-proof and dry, and as far as possible free from the influence of external change of temperature. Thus a room not exposed to the south is best, and, in fact, there is no better place for late fruit than are to keep sometimes past the new year than a cool, dry cellar fitted up with shelves round the outside, with a table in the middle for packing, &c., or for laying fruit on required for immediate use. If late Apples are gathered too soon they will shrivel, or if kept in a temperature high enough to cause evaporation from their surfaces, or if the room is a very light one the same thing will occur. After Apples are gathered and stored the less they are moved about the longer they will keep; the fruits will also be cleaner and brighter if not much handled till required for use; but in gathering special care should be taken that no bruised, unsound, inferior, or pecked fruits are placed with the best samples. Apples will keep a long time in a fresh, sound condition packed in sand in jars or boxes; kinds like Court Pendu Plat, that sometimes shrivel, will always keep well in this way. All fruit should be carefully gathered, placed in shallow baskets and carried to the store. Some lay stress upon the fruit being laid in single layers on the shelves, but I have tried various ways, and, if the fruit has been well sorted so that no specked or damaged specimens find entrance into the store with the best fruits, it matters little whether placed in single layers or in heaps 1 ft. thick. All fruits sweat a little soon after gathering—more some seasons than in others—and during the time this exhalation of moisture is going on sufficient ventilation should be given to keep the air sweet and carry off the moisture and as soon as this evaporation ceases the ventilators may be closed and the room darkened, as the changes that lead to decay go on less rapidly in the dark than in the light. Everything about a fruit room should be sweet and clean, but it is better to build it frost-proof than to have a fireplace in it, as the cooler—if not absolutely freezing, provided it be dry—the better, and even in the case of a fruit room that is not frost-proof, a paraffin stove costing about 11s. or 12s. will be better than having a dusty parching fireplace, or to be dependant upon any other means that may at times perhaps be erratic in their action. Of course Apples for keeping should be gathered when dry, and a dry Cabbage or Rhubarb leaf, or a sheet of paper should be placed in the bottom of the basket to obviate bruising.

Insects and Diseases.—Healthy vigorous trees are not much subject to the attacks of insects, but the moment weakness or debility sets in a host of enemies make their appearance. One of the most troublesome insect pests to which Apple trees are subject is the American blight, or woolly aphis, and where it once gets a footing it can only be got rid of by the most persistent efforts. If a tree has become badly affected with it the best plan is to grub it up and burn it, or saw it down and graft with scions from a healthy tree. At the same time remove the earth from the surface down to the roots, and substitute fresh material from another part of the garden. The insects will descend the stem and make an attack upon the roots; therefore the latter should be seen to as well as the top. The best and only sure way of dealing with this troublesome pest is to attack it incessantly, so long as one remains, with something disagreeable to it. With paraffin oil in a vessel that can be easily held in one hand, and a small painter's

brush in the other, smear the oil over every place where the insect can be seen, rubbing it well in. Gishurst Compound made into a strong lather will also answer the same purpose, and so likewise will soft soap. But when all the branches of a tree are infested, and have to be anointed constantly, the remedy may prove as bad as the disease, and that is why I think in very bad cases the stamping-out system is best; I have seen trees so bad that I think a law should be made to render their destruction compulsory. I was looking over a friend's garden in the suburbs of London some time ago; he had some thriving young Apple trees planted, but symptoms of this pest were conspicuous. I looked over the garden wall, and there, in a neighbour's garden only a few yards away, stood an old tree smothered with the pest; in fact the branches looked almost white; of course Apples could never thrive within a stone's throw of that tree.

The Apple or Codlin Moth is another pest that does a vast amount of mischief—not so much to the tree, perhaps, as to the fruit. It lays its eggs in the eye of the latter when quite small, and as the young insect grows it works its way into the centre of the fruit; when it reaches this point the fruit drops, and it leisurely eats its way out, and, secreting itself for a time in the earth, afterwards crawls up the stem and hides in any crack or crevice till it matures itself and comes out a perfect insect in spring. Such being its mode of life it must be obvious that the best time to attack it is when the Apple falls, before it has had time to creep out and hide itself, and I have no doubt in any garden or orchard where the presence of this moth is causing much trouble, if the fallen Apples were gathered up and destroyed daily it would soon disappear. A trap may be laid for it by tying a hay band or some old canvas round the trunk from July onwards, occasionally examining the bark beneath and killing those that have hid themselves away there; they will be attracted by the shelter provided for them and many may be thus destroyed. Other moths attack fruit trees, but their attack is made openly, and in most instances the young caterpillars can be found feeding among the young foliage and easily destroyed. There are also various forms of aphides or flies that in cold ungenial seasons curl up the leaves and otherwise lower the vitality of the tree, but usually when insects are very troublesome the cause cannot be discovered on the surface; either the tree has been over-cropped and lacks nutriment, or it is growing in a damp ungenial soil, and though it is necessary to continue the attack upon the insects, yet at the same time the seat of the mischief should be found and the vigour of the trees improved by proper remedies. If the garden engine was more frequently used the smaller kinds of insects that infest fruit trees might be dislodged and destroyed, and a high state of health maintained, as there is no better antidote to diseases of all kinds than cleanliness.

Canker has in some situations a ruinous effect upon Apple trees. It is distressing to see young trees in some gardens with the branches all seared and dead, as if scorched with a fire. Some ascribe the cause to something unsuitable in the soil; others say it is due to frost acting upon badly-ripened wood. I remember the case of an orchard a good many years ago, that was healthy and thriving until a sheltering belt of trees was cut down, when the fruit trees gradually dwindled and died. Trees that are planted in damp ungenial situations are always liable to canker whenever a season more unfavourable than usual occurs. The proper treatment for cankered trees is to cut them well back, so as to remove the cankered parts; cut a deep drain or two through the orchard, lift some of the feeding roots up to near the surface, and top-dress liberally so as to keep them there. With roots thus situated the wood will be better ripened, and frost or cold piercing winds will have a less injurious effect upon them. It generally happens that in soils where canker is prevalent the trees flourish until the roots strike down, and then the canker manifests itself.

Varieties.

CULINARY APPLES, ARRANGED ACCORDING TO THEIR SEASONS.—Early kinds: Dutch Codlin, *Keswick Codlin, *Manks Codlin, Calville Blanche d'Été, Emperor Alexander, *New Hawthornden, Cox's Pomona, *Stirling Castle, *Waltham Abbey Seedling, *Lord Suffield. Mid-season kinds: *Alfriston (this will keep till spring if required), Beauty of Hants, *Beauty of Kent, *Cellini, *Cockpit, Kentish Fillbasket, Forge Apple, Golden Noble, *Gooseberry Apple, Gravenstein, Northern Greening, *Yorkshire Greening, *Doctor Harvey, Hoary Morning, Pile's Russet, *Tower of Glamis. Late-keeping kinds: *Norfolk Beefing, *Striped Beefing, Besspool,

Winter Colman, Costard, *Duke of Wellington, *Dutch Mignonne, *Warner's King, Ord's Apple, Golden Winter Pearmain, *London Pippin, Stone Pippin, French Crab.

DESSERT APPLES.—Early kinds: Red Astrachan, *Red Quarrenden, *Irish Peach, Yellow Ingestrie, White Juneating, Red Juneating, *Nonsuch (Langton). **MID-SEASON KINDS.**—Cornish Aromatic, *Court of Wick, Scarlet Crofton, Golden Pippin, Golden Knob, *Ribston Pippin, Scarlet Pearmain, *Downton Pippin, *Fearn's Pippin, *Kerry Pippin, *Orange Pippin, *Reinette du Canada, Golden Reinette, Early Nonpareil. **LATE VARIETIES.**—Golden Harvey, Scarlet Nonpareil, Baxter's Pearmain, Stamford Pippin, *Sturmer Pippin, *Court Pendu Plat, *Boston Russet, Sykehouse Russet, *Blenheim Orange, Ashmead's Kernel, *Baddow Pippin, *Cockle Pippin, *Worcester Pearmain, Old Nonpareil.

APPLES SUITABLE FOR THE PARADISE STOCK.—Lady Apple, Culville Aromatic, Calville Blanche d'Hiver, Keswick Codlin, Winter Colman, Court Pendu Plat, Dutch Mignonne, Early Harvest, Early Julien, Jolly Beggar, Lord Suffield, Braddick's Nonpareil, Early Nonpareil, Northern Spy, Adam's Pearmain, Manington's Pearmain, Birmingham Pippin, Blenheim Pippin, Cox's Orange Pippin, Stamford Pippin, Boston Russet, Rymer, Margil, Manks Codlin.

The above lists of varieties have been selected with the greatest possible care with a view to their being generally useful; and any kind of Apple that I have found unthrifty under fairly good treatment has been purposely kept out. Of course, among the many hundreds of varieties, or so-called varieties, that are cultivated, many not included here are well worth growing, but my object was not to give a long array of names, even if all were worthy, but to make the list as select and trustworthy as possible. Those marked with an asterisk are highly recommended. Whoever plants fruit extensively should, previously to doing so, spend a week or two in looking round the neighbourhood to ascertain what kinds are thriving there, and give a preference to those kinds. The lists I give have been selected for their good general qualities under all circumstances, and may be safely relied on; but I have occasionally met with local varieties peculiar to a particular district well worth attention and extensive cultivation in that district.

E. HOBDAY.

LATE NOTES AND QUESTIONS.

Eucharis amazonica.—"L." (p. 220) should keep his *Eucharis* in the stove and rest it by partially withholding water, not by removal to a cooler house; moreover, such resting will be useless till the pot is well filled with roots, hence it should be grown on till such is the case, after which gradually withhold water, giving only sufficient to keep the roots and bulbs from shrivelling. After a month of such resting give a full supply of water, and very shortly afterwards flower-spikes will put in an appearance.—W. W. H.

Propagating Conifers.—"C. K." (p. 220) will find cuttings of the *Conifers* he mentions to root freely if planted in the autumn like Rose cuttings, and kept quite cool all the winter. When cultured in spring or about April then should be placed in the gentle warmth of a frame such as that of an ordinary Cucumber pit with manure linings. They will be useful for winter decoration the second year when rooted and potted off, and when overgrown will come in for permanent planting.—J. G.

Small White Rose Grubs.—These roll themselves up in the leaves of my Roses and fruit trees in a cobweb-like substance; how can I destroy them?—J. G. [Try shaking the bushes suddenly over a cloth or sheet; the caterpillars will then sometimes fall and may be easily killed. Crushing the rolled leaves in the fingers, taking care that the caterpillars get a good pinch, and do not drop out as soon as the leaf is touched, is the most effective way of killing them.—G. S. S.]

Cutting Down Pelargoniums.—What is the proper or best time for cutting down zonal Pelargoniums? I found on one occasion that in consequence of cutting them in during November that a great many rotted down to the root, and I lost them. Might they be cut in now?—AMATEUR.

Oil v. Insects.—Prof. Riley says that kerosene, or oil of any kind, is sure death to insects in all stages, and the only substance with which we may hope to destroy the egg. Oil will mix with milk, fresh or sour, and thus may be diluted to any desired extent.

Carnations and Picoons for Exhibition.—Would liquid manure benefit these? and if so, what kind is best? and when should it be applied?—BEGINNER.

Miller's Method of Layering Vines.—Will "A. F. B." kindly say in what Mr. Miller's system consists? The information will be useful to me, and probably to others.—G. B.

The India-rubber Plant.—I have a plant of *Ficus elastica* which has got injured by damp. Is this the right time to cut it down? also, would the eyes strike? and if so, would you strike them in heat?—J. M.

How to Make a Smother.—Information on this matter I think would be useful to many like myself. I can make a bonfire of tolerably dry stuff, but that does not leave the useful residue required.—TYRO.

Planting Kidney Potatoes.—Should they be laid flat or upright, as I see they are sprouting, mostly at one end? I intend to trench them in.—TYRO.

Variegated Ivies.—What are the best variegated Ivies for edging small beds, gold and silver? and how far apart should they be planted?—R. K. H.

Dendrobium chrysanthum.—Is it natural for the tips of the leaves of *Dendrobium chrysanthum* to go off while the plants are growing?—J. Y. K. P.

Names of Plants.—*President.*—*Cuclogyne flaccida*; the yellow tinged flower with dark lip is an *Epidendrum*, but we cannot name it correctly from the single flower.—H. P.—*Chorozeia ilicifolium*.—R. V. N.—*Iponoea rubro curulea*

Edinburgh Botanical Society.—A meeting of this Society was held on the 10th inst., Prof. Balfour, and afterwards Mr. Gray, in the chair. Mr. J. M. Macfarlane having communicated a paper on "*Lepidophlois*, a genus of coal measure plants," Mr. John Sadler read his usual monthly report on the temperatures at the Botanic Garden, and the effects thereof on vegetation. It stated that during January the thermometer was at or below the freezing point on twenty-seven occasions, while in the same month last year it was at or below the freezing point twenty-one times. There were registered collectively for the month 369° of frost as compared with 221° in January, 1880. Notwithstanding the severity of the weather, vegetation at the garden had suffered comparatively little—thanks to the past good summer and autumn in ripening the season's growth. Moreover, all low-growing plants were well-protected for a considerable time with a thick covering of snow, which at its greatest depth measured from 10 in. to 15 in. The only shrubs which Mr. Sadler had as yet noticed slightly injured were the common green Holly and Portugal Laurels, and these were only browned. However, it was too early yet to see the full effects of the storm. At the February meeting of the Society last year, Mr. Sadler said he was able to place on the table the flowers of over a dozen species and varieties from the open air, but he was sorry to say that he was unable to exhibit one that evening. He observed, however, that the spring-flowering plants, especially on the rock garden, had not been dormant during the four or five weeks that they had been under the snow, and that many of them, with a few days of genial weather, would be in flower. In closing his report, Mr. Sadler mentioned that the late storm had proved very fatal to many of the feathered tribe. This was principally owing to the fact that there were no "haws," and but little fruit of any kind. Even the Holly yielded no berries. The following birds had been found dead in the garden: thrush, red-wing, blackbird, robin, chaffinch, wood-pigeon, and common rooks. Mr. W. W. Johnston mentioned that on the 14th January, in various districts from Perth to Coupar-Angus, and all through Strathmore, the thermometer had registered from 3° to 5°, and even 7°, below zero. So severe, indeed, had the frost been that large branches of Portugal Laurels, 6 in. in diameter, had literally been split open by the expansion of the sap. Mr. Sadler exhibited from the cold frames in the Royal Botanic Garden specimens in flower of *Saxifraga Bursaria* major (at the February meeting last year this species was exhibited in flower from the rock garden), *Saxifraga Stracheyi*, *Cyclamen Coum verum*, and *Corydalis Ledeboureaana*.

Royal Horticultural Society.—The Rev. George Henslow sends us the following circular and requests us to give it publicity:

I have noticed that certain plants—the particular merits of which may not be always apparent at first sight—are not infrequently exhibited at South Kensington and brought before the Floral Committee, the members of which consequently feel some difficulty in judging of their merits for want of fuller information about them than can be obtained by mere inspection at the table. It has therefore occurred to me that it might be an assistance to both exhibitors and the Committee if the former would communicate to me in writing, a day or two before the exhibition, such details of any particular plant as it may be thought desirable to bring to the notice of the Floral Committee. I should be most happy, in my capacity as "Demonstrator," to describe such particulars to the members as might be thus furnished. By adopting this plan I think the Committee would be better able to judge of the merits of any such plants. I also wish to say that if any one should happen to meet with any herb, shrub, or tree which exhibits remarkable growths, diseases, sports, &c., or, in fact, anything whatever that may strike one as peculiar, I shall be extremely obliged by its being kindly forwarded, addressed to me as "Secretary of the Scientific Committee, care of Mr. J. D. Dick," with the addition of any notes or observations which it may be thought necessary to make. I shall have great pleasure in bringing the same before the notice of the Scientific Committee.

Low Temperatures.—Allow me to correct a printer's error in the memorandum I sent you of frost recorded here during last month, inserted in THE GARDEN of 12th inst., viz., the temperature on the 20th and 26th January should be -3, or 3° below zero, not 3 as printed, which would be above zero.—RICHARD COLLES, *Abbevale, Kilkenny*.

Asparagus Culture.—Anyone having an original copy of "Asparagus Culture," published at this office, will greatly oblige us by the loan of it.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

GARDEN THOUGHTS.

FOR some years I have entertained and expressed the conviction that Rose trees should be cultivated far more extensively than they are upon their own roots. I know that for exhibition the blooms cut from "maiden" stocks, the first disbudded Rose, from the long, strong, uninjured shoot which has come forth from the Brier or the Manetti, are of all the most beautiful. I believe that for the Tea-scented Rose the Brier, grown from seed or from cuttings, will continue to be the best of trainers, as successful in bringing those lovely flowers to our borders and boudoirs as Mr. Routh in bringing wranglers to the trips. I am assured by experts that some varieties of the Rose, like conscientious Quakers or contented colliers, cannot be induced to strike. Nevertheless, I maintain that for endurance—and therefore for economy—for the quantity and, in the long run, the quality of their flowers, these Roses of the Hybrid Perpetual family, which occupy three-fourths of the Rosarium, may be grown (with few exceptions), and ought to be grown, upon their own roots, that is, from cuttings. They will not delight us with those marvellous blooms which we see once on the 6-ft. canes of the Manetti, or on the showy standards of the Dog Rose, but the horse which gallops away with the lead is sometimes "first at t'other end" when the run is over, and twice in my own experience I have obtained prize Roses by applying stimulants which proved to be the ruin of the trees.

In a very interesting, descriptive, catalogue of select Roses, sent to me by my American friends, Messrs. Ellwanger and Barry, of the Mount Hope Nurseries, Rochester, New York, from which Rosarians will rejoice to know that Rose culture in the United States has never attained such popularity as now (Messrs. E. and B. have one square of 38,000 Manettis), and which contains a short paper read before the New York Horticultural Society, and well worth the perusal of their English brethren on "Typical Roses and their Characteristics," I find that, growing their Roses in nearly equal quantities on their own root and on the Manetti, their verdict is in favour of the latter for outdoor cultivation. They say that many varieties, such as Madame Boll and Miss Hassard, are propagated with difficulty, and do poorly, and that some others, such as Baron Rothschild and Madame Lacharme, actually refuse to grow at all from cuttings. Our own nurserymen express similar conclusions. But they will tell you candidly, at the same time, that the wish is in a great measure father to the thought; that they grow and advertise Roses on their own roots, but that the public prefer their more showy plants, which are produced from stocks; and that, as these can be realised more easily and quickly, the Rose merchant, as a rational being, will continue to supply the demand. If that demand changes, as I believe it will, he will meet it, and whether his name be John or Jonathan, whether he live in Old York or New, you will find that he can strike anything, when it is worth his while to try.

Comparatively, the production of Rose plants from cuttings is a slower process, but it is by no means so tedious and tardy as some would have us believe. I have a letter before me from a Rosarian who has that true enthusiasm which

works and wins, and he says, "It is my belief, though I hardly dare express it to the nurserymen, that Roses are best of all on their own roots. As for the time which they take to make plants, I am at a loss to understand the meaning of such a complaint. My own experience may be exceptional, but the cuttings I put in last February (1880) were finer plants in October than any which I purchased elsewhere. I have one plant of Etienne Dupuy with five shoots on it, one of them between 5 ft. and 6 ft. long, and as thick as my little finger. From cuttings of Hippolyte Jamain put in at the same time I actually cut some very pretty blooms of good form and fair size when they had not been six months in the ground. I have also eighty-four nice little plants of the Maréchal struck at the same time, and also in the open ground. These I had taken up and put in a frame before the bad weather, so I shall be able this year to grow them. I believe the great reason why cuttings so often do badly is, that they are put too thickly in the ground; and I cannot help thinking that there is a vast deal of prejudice against them. I hope, at any rate, to give them a good trial."

Another skilled Rosarian, Mr. George Baker, writes in "The Rosarian's Year Book" of this year: "I feel persuaded that the best mode of growing Roses is upon their own roots, and I believe that this opinion will be confirmed, and before long will be generally adopted. There may be certain positions in a garden where standards and half standards may be planted with good effect, but to my mind, Roses, like all other flowers, look best when planted in masses, and will be seen to most advantage and producing the finest bloom when on their own roots. I have grown some few hundreds from cuttings, and find them easy to cultivate." I have been of Mr. Baker's opinion ever since I saw, some thirty years ago, a large oval bed of Baronne Prevost covered with Roses. There was but one speck on the picture, a sucker from the parental Brier; *e.d.*, they should have been on their own roots.

In the early days of Rose shows, Mr. Charles Perry, a very genial and earnest florist, grew Roses on their own roots extensively, and his pretty garden at The Cedars, West Bromwich, was a pleasant sight to see. But the Roses were small, though the plants were vigorous, and this fact gave to me and to other Rosarians the idea that prize blooms were not to be obtained from that system of culture. Experience has convinced me that this notion was erroneous, and that in a good soil, with judicious pruning, liberal diet, and disbudding, the Rose may be realised in the full perfection of its form and colour from plants on their own roots.

"What do I mean by liberal diet?" I mean a generous dressing of loam and manure, applied when the first hard frost makes good travelling for barrow and cart, dug in in spring, and supplemented when the buds are opening by some liquid or other nutritious tonic. I have six sacks of different artificial manures in readiness for distribution when the weather invites the spade and the pruning knife (it must be a sharp one this season, for there is a sad amount of amputation to be done), and I shall have pleasure in communicating to the public such results as may seem worthy of notice.

The authoress of that pleasant little treatise, entitled "The Art of Gardening," asks for information concerning "single" Roses for garden culture. The most beautiful of those known to me are the single yellow Banksian and the single copper Austrian Brier. There is hardly a more becharming Rose than the former when seen in that happy luxuriance which it attains in the south of France and Italy,

but it is rarely realised in this climate. If the copper Austrian has a dry soil and sunny site it will grow in most gardens, and deserves trial everywhere, but it is capricious, and, like love which has nothing but beauty to keep it in good health, short-lived, and apt to have ague fits. There is the single white Banksian, and the single yellow Austrian, the York and Lancaster (which I cannot persuade to reappear in its ancient glory), the sweet little Alpine, and a variety of Scotch Roses, of which I have recently planted a bed, and hope to report hereafter, but at the present I must candidly own that I know very little of the single Roses, except those which are of all to me the dearest, the wild Roses of our fields and lanes.

The same correspondent asks if the Rose is known in England which Miss Bird speaks of as growing near Zezo, in Japan, and which is described as a dwarf Rose, of a deep crimson colour, with orange Medlar-shaped hips as large as crabs, and corollas 3 in. across. Will "E. H. W.," a Rosarian who has visited Japan, kindly reply to this enquiry?

S. R. H.

ORCHIDS.

ORCHID CULTIVATION.

ORCHIDS are to be seen in a thriving state, at least for the time being, under such varied and often in some respects opposite conditions, that it requires a long and patient study of the requirements of many species to determine under what condition they succeed best permanently. I repeat permanently with emphasis, for unquestionably there are more cultivators of Orchids than of any other class of plants who for a time are deluded by success, which is not lasting. This requires no further confirmation than simply pointing to the luxuriant growth which plants of some particular species or family make for a considerable period, often several years, and then gradually lapse into a weak, enfeebled state and ultimately die; and this when grown in the same houses and under the care of the same individuals. This more particularly happens with the kinds that require most warmth, such as the *Saccolabiums*, *Phalænopsis*, *Vandas*, with some of the *Angræcums* and *Aerides*. It is a common occurrence to see some or other of these with their big deep green leaves very much larger than the same species ever produce in a state of nature, and which, for the time being, are fair to look upon and delight the cultivator, who after awhile finds he has been labouring under a delusion, the growth of his plants being like the corn that springs up on a manure heap—the result of over-stimulation. That this is no misrepresentation of what has been the fate of an unlimited number of Orchids anyone who has been long enough engaged in their cultivation, and has had an opportunity of seeing many of the collections of these plants that have existed in the country, can vouch for. It is frequently said that the cultivation of Orchids from the Eastern Hemisphere is on the decline, that they cannot be kept on in a thriving condition and increasing in the way that many of the cooler species do for an unlimited time.

Regarding the first of these statements, it is the want of success that causes people to give them up, and the latter assertion is continually meeting with positive refutation by the plants that are to be met with in places where they have been grown for a quarter of a century or more that keep yearly increasing in size, and are as healthy as if growing in their native habitats. From time to time there turns up a lot of Orchids like the Burton-Constable collection noticed in *THE GARDEN* (p. 172). An opportunity I had of seeing some of these plants enables me to say that if the description erred it was in being underdrawn. It is scarcely needful to say that if Orchids in one instance can be kept as these have, thriving and full of healthy vigour, in a way that could not be surpassed in their native country, they could generally, if only managed in the same way, that is with the treatment only so far varied as the different character of the houses in which they were grown and other local circumstances of each individual case might require. The necessity of considerable variation in the details of cultivation with Orchids, according

to the different description of house in which they are grown, is frequently not sufficiently realised; even the position the plants occupy in the same house makes a wide difference in what they require or will do with. For instance, plants that are hung up near the glass, even *Cattleyas* that will stand so comparatively little water, will bear the material in which their roots are placed keeping much wetter during the growing season than the same plants would stand if stood 4 ft. or 5 ft. away from the roof; and similar positions in close proximity to the glass have a like influence in the heat the plants will bear, but in this latter the difference, so far as the amount of fire-heat is concerned, is often more apparent than real, for a plant that is hung up within 1 ft. or so of the glass is frequently much cooler, except when the sun is shining, than it would be if in the body of the house at a similar distance from the roof to the thermometer, which indicates the temperature kept up. Beyond this there is always more air in motion close to the glass, which, together with the amount of light the plants are subject to, have a ruling influence on the heat which all plants, Orchids in particular, will bear without the slow, but certain undermining of their health. There are no doubt a few Orchids, as there are other plants, that all but refuse to conform to the artificial conditions inseparable from cultivation; but the sooner the mistaken idea is dispelled that Orchids generally cannot be so managed as to go on for an unlimited time in a healthy condition, increasing in size so as to permit of their being divided and increased in numbers if required, the better.

I feel convinced that one of the principal causes by which Orchids innumerable are destroyed is through the generally prevalent idea that they are too delicate to admit of air being allowed to reach them during the growing season, except in infinitesimal quantities, the result of which is that it is filtered into the houses where they are grown in such dribbles that the whole substance of the plants—leaves, bulbs, and roots—is deficient in the solidity indispensable to keep up a healthy existence. In support of this I may instance the many small collections of Orchids to be met with, often few in numbers, yet sufficiently representing most of the principal divisions of the family, and in them are frequently to be found the most extraordinary examples, and these not unusually grown by men who lay no claim to being Orchid growers, the plants, as often as not, grown in a stove along with ordinary stove plants, and, so far as heat, air, and light go, treated in common with the other occupants of the house. The many instances of this kind that are frequently coming under notice, where the plants, as I have already intimated, are not unusually in the hands of those who, although good general gardeners, have previously had little or nothing to do with Orchids, often cause the off-hand assertion to be made that Orchids are easily grown. Yet it is well not to come to this conclusion on evidence of this kind, for such success is frequently the result of accident in the grower by chance giving the plants the treatment that turned out to suit them. More than once I have seen this verified when the same plants were transferred to other houses, but still under the care of the same individual, and did as indifferently as they had before succeeded well. A little reflection as to the widely different conditions under which the different species of even a single genera of Orchids exist naturally is enough to convince anyone that to be successful in their cultivation to the extent of keeping them in a lasting healthy state, it takes a good deal of practice and close observation as to the requirements of the different species, and if this is supplemented by an intimate acquaintance with the nature of vegetable life generally, success is more likely to be achieved than by following the routine course of treatment often looked upon as correct, but which does not result in Orchids continuing to thrive as other cultivated plants do, and until this is much nearer attained than is usually seen it would be well for those engaged in their cultivation to study the reasons why here and there a lot of plants keep on uninterruptedly doing well for a good portion of a lifetime, whilst many more of the immense number imported, especially the warmer species, flourish for a time and then gradually dwindle out of existence.

T. BAINES.

Resting Orchids.—Mr. Baines, in his remarks under this head (p. 198), clearly demonstrates that *Dendrobies* may be kept for many years in good health in a very much lower temperature than that they ever experience in their native habitat. But what I wished was to warn the inexperienced, in possession of valuable plants, against trusting to the vague term, cool Vinery, as a safe place in which to

rest valuable Orchids during severe weather, for cool Vineries at rest are just kept clear of frost, and that is all. We never put heat on if we can help it until the thermometer is close on the freezing point inside; and although cultivators like Mr. Baines may safely rest their plants, and thereby keep them back from flowering until a late period for exhibition, I fancy many would find that after a prolonged stay in a cool Vinery that their Orchids were anything but refreshed by their season of rest. As regards the *Phalaenopsis* mentioned by Mr. Baines as being generally longer-lived and altogether stronger when subjected to a long period of rest than otherwise, I can only say that I am convinced they do equally well without it; for instance, at Henham Hall, Suffolk, may be seen a row of plants in wooden baskets that have yearly kept increasing in size of leaf and floriferousness, but they are never removed from the house, which during the ten years I was there was seldom below 65°; and although I have read of these lovely plants growing in houses when they were blown about by the wind, I must say I have not seen good results from cool treatment in their case, and therefore cannot recommend it to others.—J. G.

Varieties of *Cœlogyne cristata*.—There must be better and worse varieties of this popular and truly splendid Orchid, or else I have got a kind that I cannot reconcile with the description of any of the other *Cœlogyne*s. About two years ago or a little less, I received a quantity of newly imported bulbs of *C. cristata*, and in potting them I put some bulbs aside that did not look quite the same as the others and potted them by themselves. These bulbs have now flowered well, and the flowers are decidedly different from, and better than, those of the common kind. Their most distinguishing difference is that the flower-scapes are of a kind of chocolate colour up till the time when the flowers expand, but after that the flowers would be called pure white, except when seen beside the other kind, when a slight tinge of difference is discernible. The flowers of the, to me, new kind are also larger and finer, and have a dark orange-coloured patch at the back of the throat, which the other has not. More flowers are also produced to the spike, small bulbs not larger than an ordinary marble producing five flowers, while the old variety never produces more than three or four to even good-sized bulbs, and rarely more than six or seven to strong ones. Our imported bulbs were very small, from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. in diameter, and it is these which have produced the slightly larger bulbs that have produced the flowers this season. I am therefore sanguine that future spikes will be much larger and finer. As it is, the flowers have an altogether finer and more luxuriant look than those on our old plants well established in pans and beside which they stand. I would be glad to have further information on this point.—J. S. W.

NOTES ON ORCHIDS IN FLOWER.

THE Orchid houses in Mr. Williams' nursery, Upper Holloway, are now assuming a gay appearance. The following are among the most noteworthy of plants in flower. Of the lovely *Cymbidium eburneum*, there is an exceptionally fine specimen, about a yard across, and bearing seven expanded flowers. It represents the finest form, that with the largest flowers having beautifully-spotted lips. In another house there was a large group of smaller plants all either with expanded flowers or plump buds. This Orchid is grown here in a moderately warm and moist atmosphere, and is treated as a terrestrial kind, being potted in a rather stiff compost for an Orchid. One of the finest forms of

Aerides Fieldingi, the Fox-brush Orchid, we saw in flower in the East Indian house. The individual flowers were unusually large and handsomely marked with copious spots of carmine on the blush-tinted ground of the waxy sepals. Some of the *Vandas* are still very gay, *V. suavis*, being remarkably fine, the tall vigorous "breaks" bearing two and even three spikes. Most of the varieties of this variable species are represented, from the ordinary type to those with large and heavily spotted blossoms. Among the

Dendrobies, there were several in flower, notably, *D. Ainsworthii*, a beautiful hybrid between *D. nobile* and *D. heterocarpum*, the progeny being strikingly intermediate between the two parents; *D. aggregatam majus*, *D. crassinode* in fine variety, and *D. luteolum*, the latter being particularly fine, and showing admirably the ever-green character of the species, the long stem being still furnished with bright green leaves, which set off advantageously the creamy white flowers; the long time during which this species continues in perfection compensates in a great measure for the want of colour in the flower. One of the prettiest Orchids in flower, was

Cœlogyne ocellata maxima, a variety of a rather uncommon Orchid, with flowers far superior to the type in size as well

as in the brightness of colour and the heaviness of the blotches. The blossoms measure about $1\frac{1}{2}$ in. across, have pure white sepals, and narrow concave lips, marked in an eye-like manner, with various shades of yellow and orange. The flowers are produced plentifully on long, loose racemes, which gracefully hang over the side of the pot, and this character combined with evergreen foliage, which is at its best at the flowering season, renders this one of the handsomest and most desirable of Orchids. The bulbs are a deep green, and flask-shaped, and growing crowded together so as to form a symmetrically-shaped plant. It was honoured with a certificate from the Royal Botanic Society last year, and when it becomes better known it must inevitably become popular. One of the neatest *Oncids* we have seen for a long time is

Oncidium pubes, a small growing kind with attenuated dark green bulbs, somewhat in the way of *O. sarcodes*. The flowers are small, barred and spotted with various shades of brown and yellow, but they are produced so numerous on long pendulous panicles of a flat, triangular outline that their smallness and dull colour are amply compensated for by the manner in which they are produced. It is grown in suspended baskets, and few Orchids pleased us better than some flowering plants of it. Among the

Lady's Slippers were several in flower, the most noteworthy being some remarkably fine and profusely-flowered examples of the old *Cypripedium villosum*. It seems that there are two distinct forms of this Orchid as regards their flowering. One form has narrow leaves, and rarely produces flowers, even under the most skilful cultivation; the other, that under notice, is a free flowering form, the blossoms being large and highly polished, while the foliage is broad and long, and of vigorous growth. The plants now in flower at the Victoria Nurseries are some $2\frac{1}{2}$ ft. in diameter, and bear from two to three dozen flowers on each plant; the pots are 12 in. or 15 in. across. Also of *C. Swianum*, a handsome hybrid variety, there was a large group finely in flower.

Among other kinds that we noted were *Arpophyllum giganteum*, a pretty Orchid of large growth, but seldom seen in flower; numerous *Odontoglossums*, including a new yellow-flowered form of *O. Alexandræ* not yet named, and the charming little *O. blandum*; *Angraecum citratum*, the beautiful little Madagascar Orchid we noticed last week; various *Masdevallias*, *M. ignea* and *tovarensis* being particularly fine; *Ada aurantiaca*, one of the most desirable of Orchids on account of its unique colour—a rich, reddish orange.

W. G.

Oncidium cucullatum.—This charming little *Oncidium*, one of the prettiest of Orchids, is represented and grown exceptionally well at the Pine-apple Nursery, Maida Vale, and there is now in flower one of the finest forms of it we have ever seen, the lip of the flower, which is always most conspicuous in this Orchid, being unusually broad, and copiously spotted with deep violet-purple on a pale purple ground with a clouded margin of a lighter hue. For cutting purposes, bouquets, and the like, few more suitable Orchids can be found than this, and the many forms one may obtain from an imported batch makes it all the more desirable to cultivate.

Goodyera discolor.—This old and tolerably well-known Orchid is usually grown more for the sake of the beauty of its rich velvety foliage than for the flowers; hence it is not often met with in the latter stage. There is in one of the Orchid houses at Kew an extremely well-grown example of it, each growth, about a dozen in number, bearing an erect spike of its waxy white flowers, rising from 6 in. to 9 in. in height, and forming a striking contrast to the dark leafage. The plants are grown in shallow pans, but not suspended, and they are placed in a warm compartment.

Odontoglossum Lindenii.—The merit of this little-known species lies in the clear canary colour of its blossoms, which are of medium size, produced numerous on long and tender stems. Such a colour is rare, even among *Odontoglossums*, for the yellow is quite as clear as that of *Oncidium concolor*. Flowering specimens of it are now in good condition in Mr. Bull's nursery.—W. G.

A false god.—I seemed to see a long border by the side of a broad gravel path, and along the edge of the path for the breadth of 1 ft. or more the bed was gleaming with the yellow glory of the vernal Crocus. And I also seemed to see the same border a few days later with all its glory gone, and in place of its golden belt a thick ugly stubble of close shorn leaves. I dare say the reader has often seen the like himself, and seeing has shuddered at such a barbaric sacrifice to the false god of tidiness. Such a sight is a sure token that the garden is in the hands of one who is a gardener only in name. Our language is sadly in want of a new term to save us from the wrong of using the grand old name of gardener when we wish to speak of men who, though they are entrusted with the charge of gardens, and may be often diligent, honest, and in a cer

tain way successful, have no real love for flowers, and none of the true gardener's instincts. The fashionable Roman of the times of the Empire, whom the pride of a luxurious life had utterly estranged from Nature, used to call his gardener a *topiarius*, or "object-maker," because his chief duty was to clip trees and shrubs into fantastic images of animals, ships, and other objects. In like manner many of our fashionable modern gardeners seem to me to be "object-makers." To them a flowering herb or shrub is not a living being with a beauty of its own, bred out of a long ancestral struggle for existence, and therefore seen at its best amid its natural surroundings, a living being, with habits, feelings, longings, to satisfy which its life is one long endeavour, and which unsatisfied must bring shortcomings, and in the end death. They look on foliage and flowers as mere objects, with certain turns of shape and certain shades of colour—mere lifeless units, to be put in or taken up where and when they please, according as they need material to work into their carpet beds, or build up into their glaring parti-coloured knots. Like their Roman forbears, the weapons they mostly love are the shears and the knife; and the enemies against which they fight with stubbornness and zeal are leaves.—*Gardeners' Chronicle*.

NOTES OF THE WEEK.

The Netted Iris (*I. reticulata*).—This lovely hardy bulbous plant is now in bloom in Mr. Joad's garden, at Oakfield, Wimbledon Park. It is planted out in the raised borders of a house which is only heated to exclude actual frost. By thus protecting the plant, it may be had in flower several days, and even weeks, before those planted in open borders, and the protection is in no way detrimental to the health of the plant; on the contrary, it tends to ripen the bulbs more effectually, thereby conducing to the production of finer flowers.

Chinese Primula Magnifica.—When this was exhibited a month ago at South Kensington it was scarcely sufficiently developed to show the true character of the variety, but lately we saw a large group of it in the Victoria Nurseries, Holloway, in fine flowering condition. The plants were vigorous, with deep green foliage, and the flower-trusses large and produced well above the leaves; the pips were also large, finely formed, and of a clear white without a suffusion of green. A peculiarity of this variety is the crisped margins of the leaves, thus seeming to form an intermediate link between the Fern-leaved and the ordinary forms. It is certainly one of the best Primulas Mr. Williams has yet sent out. Several other kinds, such as Chiswick Red, are also in beautiful condition.

Puschkinia sicula and scilloides.—In Mr. Joad's garden these two bulbous plants are flowering side by side; the former has flowers of a much deeper shade of blue than the other, but both have the characteristic stripe through the centre of each flower. In colour, therefore, these two kinds seem to differ, but in no other respect, certainly not enough to justify a specific distinction. Our plate published a few weeks ago shows well the paler tinted form.

Eupatorium inanthum.—This well-known and valuable winter-flowering plant, better known, probably, under its older generic name of *Hebeclinium* or *Conoclinium*, is at present one of the showiest plants in flower in the Palm house at Kew. The huge, dense, plumy tufts of lavender-tinted blossoms, combined with the large handsome foliage, render it very attractive. Some large plants of it well furnished with flowers have a fine effect mixed with other plants in the Palm house, and later on it will be employed for embellishing the conservatory No. 4.

Azalea Mrs. Gerard Leigh.—This is another of the new type of Azalea that Mr. Williams, of the Victoria Nurseries, Upper Holloway, is now distributing; like the others heretofore mentioned, it is of the *amœna* type, characterised by a profusion of neat little flowers, of tints not previously obtained in the small-flowered type. Mrs. Gerard Leigh is a highly attractive variety, a large pyramidal specimen of it in full flower, which we saw the other day, being very striking.

The Onosma-flowered Epacris (*E. onosmæflora*).—This is one of the prettiest of Epacrises, and remarkable for the distinct manner in which its white bell-like flowers are borne. The branches are long and slender, the flowers being arranged in whorls their whole length, and the recurving pointed leaves lap as it were over each flower, the white and the green making a pretty contrast. We saw some vigorous young plants of it the other day in a greenhouse in Mr. Joad's garden, where a collection of all the species and varieties are cultivated. This species is, we believe, the original form of the double Epacris shown some time ago by Mr. Bull, and is a remarkably handsome plant, and one that will be sure to gain public favour when dis-

tributed. In Mr. Bull's nursery there are several fine examples of it in flower which are very attractive.

Stevia glutinosa.—This is a most valuable plant for winter and spring flowering and especially in a cut state. The flowers are pure white and borne plentifully in flat, spreading clusters; the habit of growth is bushy, and the plant being a rapid grower soon attains a larger size. It has recently been brought into prominent notice by Messrs. Veitch, of Chelsea, in whose nursery we saw some fine plants of it the other day, which had been in flower since last autumn.

The Holly-leaved Hovea (*H. ilicifolia*) is one of the prettiest Australian plants, with Pea-shaped flowers, with which we are acquainted. Even a small plant of it covered with flowers is a veritable little gem; such a plant we saw the other day in Mr. Joad's garden at Oakfield, Wimbledon Park; it was scarcely 1 ft. in height, and was completely covered with flowers. It was grown in a cool, airy greenhouse in company with other plants of a similar character. It is said to be rather a difficult subject to start vigorously into growth, but when once started it grows rapidly enough.

Chinese Primroses.—I send you blooms of my Primulas possessing five shades of colour. I am fond of this class of plant, and like to grow the best kinds. I fertilise the flowers and save my own seed. Seeds of the plants from which the blooms sent were sown in March, and now each plant is more than 18 in. across and furnished with from three to six strong stems rising well above the foliage and literally covered with bloom.—JOHN CROOK, *The Grange, Farnboro*. [Charming blooms, finely fringed, and bright in colour.]

Henfeya scandens.—This is one of those plants which are seldom seen or heard of, except in botanical collections, though it possesses merits that recommend it to the notice of the general cultivator; having a climbing habit of growth it is excellent for covering walls or for training to pillars, rafters, or trellises; the flowers, too, are large, being about 2 in. in length, trumpet-shaped, white, and produces in long loose clusters, terminating the slender twining branches. Some plants of it in flower in Mr. Joad's garden at Wimbledon Park, though small, showed well what a capital plant it would be for the purposes just indicated.

Illustrated Seed Packets.—An innovation in the way of seed packets has just been brought under our notice by Messrs. Howcroft & Watkins, Tavistock Row, Covent Garden. It consists in having coloured portraits of the flowers—the seed of which is within—on one side of the packet, and the description and cultural directions on the other. On the whole the portraits in question are not exaggerated, and there is no difficulty in recognising the plants they are intended to represent. To those, therefore, who do not know flowers well, such portraits will be useful, and their small price, seeds included (1d.), will tend to render them popular.

Gardenia citriodora.—At a season when comparatively few flowers are obtainable, one would think that such an exquisitely scented stove shrub as this would not be neglected, as it undoubtedly is. It possesses much to recommend it; it is of easy culture, grows vigorously and rather rapidly, and never fails to produce a continuous succession for weeks, and even months, of pure white flowers, each as large as a shilling, and, as we before mentioned, deliciously scented. At Kew and a few other gardens, such as Mr. Joad's at Wimbledon, we have lately seen it in flower.

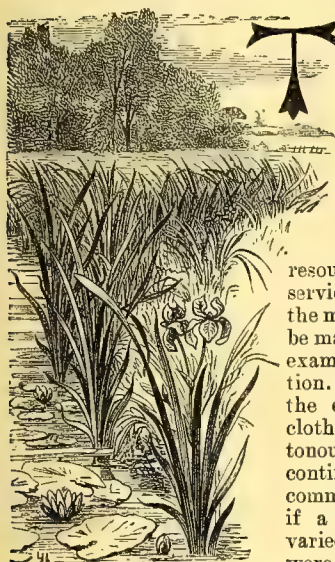
Sweet-scented Cycad Cones.—Among a large importation of Cycads in Mr. Bull's nursery, Chelsea, are numerous leafless stems of *Encephalartos villosus*, nearly all of which have produced cones of flowers which emit a sweet perfume similar to that rare Cycad *Stangeria paradoxa*.

Bomaria Cالداسiana.—This pretty greenhouse twining plant makes a suitable companion to *B. multiflora*, of which we gave an illustration last week; the flowers are, however, lighter in colour and a shade or so larger than those of that kind. We saw it a few days ago in Mr. Joad's garden, where it has been flowering for some time past, and is likely to continue so throughout the spring and summer; hence it is an excellent plant for the greenhouse, easily grown, and extremely valuable for cutting purposes, as the blooms last in beauty a long time.

Fuchsia-leaved Calceolaria (*C. fuchsifolia*).—This is an excellent plant for producing a plentiful crop of flowers in winter, and only requires the protection of a glasshouse or frame with little or no heat to keep it in vigorous health and a floriferous state. On the rockery under glass at Oakfield, Wimbledon, there are some fine flowering plants of it, the clear canary yellow blossoms of which, and the deep green leaves, are particularly attractive when little else is in flower. It was figured in the *THE GARDEN* (Vol. XV., p. 238). It is called also *C. deflexa*.

THE FLOWER GARDEN.

BOLD WATERSIDE PLANTS.



THE plants that grow by the waterside, so much admired in natural scenery, are seldom taken so much advantage of for cultivating as they might be; otherwise the bare water edges so often found in connection with lakes and other ornamental water would be of less frequent occurrence than they are. With the vast resources of suitable plants at our service, if appropriately employed, the margins of artificial water might be made to surpass even the choicest examples of natural riverside vegetation. In the majority of cases, if the edges of artificial water are clothed at all, they have a monotonous appearance on account of the continuous fringes of plants of a commonplace type used; whereas if a greater variety of kinds of varied height, habit, and flower were employed and disposed in bold irregular groups—some close

to the margins, others at a distance from them, and some even partly submerged—some of the most charming effects could thereby be obtained. The principal consideration is a knowledge of the positions in which the plants thrive best, the degree of moisture in which they will flourish; then grouping them effectively is easily accomplished. The following enumeration consists wholly of vigorous growing plants that when once planted can take care of themselves. Our native flora affords great numbers of really handsome waterside plants, many of which are in no way inferior to exotic kinds. Amongst the showiest are the

Willow Herbs (*Epilobium*).—These, being well known, need but little description; of the former, *E. angustifolium* is the finest. In rich moist soil it grows 5 ft. or 6 ft. high, and in summer is covered with a profusion of showy purple-red flowers. There is a white variety which is even more effective than the type, as the colour is so uncommon among water plants. The great Willow Herb, or Codlins and Cream (*E. hirsutum*), is a true water plant, and though not so showy as the preceding should never be omitted. Also of the Purple Loosestrife (*Lythrum Salicaria*) there are now some extremely fine varieties; one, named *superbum*, grown largely in Mr. Parker's nursery at Tooting, may be said to be the finest of all hardy flowers, and all the *Epilobiums* are excellent companions for our beautiful native Meadow Sweets (*Spiræa*).

Many of the Grasses of the larger type flourish better in moist places near water than elsewhere. One of the handsomest is the

Great Reed Grass (*Arundo Donax*), which grows 10 ft. and even 15 ft. in height when planted near the margins of water where the roots are continually moist. It requires, however, a rather sheltered position, as it is apt to be injured by severe cold or cutting winds. A bold isolated group of this noble Grass is one of the fairest types of hardy vegetation which we possess, yet, singular as it may appear, it is often overlooked.

The New Zealand Reed Grass (*Arundo conspicua*), as well as the Pampas Grass (*Gynerium argenteum*), flourish by water far better than in other positions, provided there is not an excessive amount of stagnant moisture about the roots. One or two kinds of Lyme Grass (*Elymus*) are excellent for planting in wet places where choicer plants would not flourish, the most suitable being *E. giganteus*, which grows some 4 ft. or 5 ft. high; *E. virginicus*, and *canadensis*, both North American species

of tall vigorous growth. Some of our British Grasses of noble aspect look well if planted in distinct groups, and not allowed to run in a monotonous fringe. The best of these are the common Reed (*Arundo Phragmites*), which abounds in many parts in wet ditches; the Wood Small Reed (*Calamagrostis Epegeios*), which grows from 3 ft. to 4 ft. high and flourishes as well in open wet places as in woods and thickets; Purple Small Reed (*C. lanceolata*), taller than the last; the Reed Grass (*Digraphis arundinacea*), from 3 ft. to 5 ft., with broad leaves and handsome plumes from 6 in. to 8 in. in length—all interesting when properly planted. There is a variety of this with variegated leaves called the Ribbon Grass or Gardener's Garters. One of our illustrations shows well the effect of some of the indigenous Grasses forming a fringe to a natural river or lake. Among the choicer exotic Grasses of large growth are *Eulalia japonica*, 5 ft. high, *Gymnothrix latifolia*, *Erianthus Ravennæ*, *Stipa gigantea*, *Sorghum halepense*, and *Andropogon strictus*—all of which delight in moist situations.

Bamboos.—There is no other type of hardy plants from which such beautiful effects can be produced by water margins as from the various kinds of Bamboos which thrive so finely in our climate. Planted by the side of a running stream, or near the margin of a lake or pool, they succeed better than in any other place, and soon attain a great height. Among the hardiest are *Arundinaria falcata*, *Bambusa arundinacea*, Metake, *viridis glaucescens*, *nigra*, and *Phyllostachys bambusoides*.

Sedges and Rushes.—The majority of the former are essentially water plants, and many of them form beautiful objects when planted in bold groups. For this purpose some of the finest and most suitable are, among *Carexes*, *C. paniculata*, a native species, which grows into luxuriant tufts as high as 4 ft. if planted in wet boggy places in which little else will grow. Then there is the extremely graceful *C. pendula*, one of the largest of our native *Carexes*, with its long catkin-like spikelets, produced in early summer on plants 3 ft. high. The Fox *Carex*, as well as *C. acuta*, are likewise well adapted for wet places, each attaining 2 ft. or 3 ft. in height, and of *C. acuta* there is a handsome variety with variegated foliage. There is also a variegated-leaved variety of *C. riparia*, which is very handsome and retains its character well, even in water.

One of our handsomest native water-loving plants is the Galingale (*Cyperus longus*), whose stout stems, terminated by singular tufts of leaves, attain a height of even 4 ft. or 5 ft.



Group of Flame Flowers (*Tritoma*) near water.

As it flourishes best when its lower part is wholly submerged, it is a capital subject for planting in shallow water at a little distance from the margin. When disposed in bold groups, and these not repeated too often, it greatly relieves the somewhat monotonous appearance of an even fringe along the water's edge. Another fine *Cyperus* is *vegetus*, which has wider leaves than the last and lighter green in colour, but it does not grow so tall. Nearly allied to the *Cyperuses* are the

Club Rushes (*Scirpus*).—*S. triquetus* (3 ft. high), *S. lacustris* (from 4 ft. to 8 ft. high), and *S. Holoschoenus*, a stiff Rush-like plant

(some 3 ft. high), are all excellent waterside plants. Of similar growth is the Prickly Twig Rush (*Cladium Mariscus*), which is useful for planting in poor and wet soil where little else would thrive.

Irises.—In addition to the common yellow Flags (*I. Pseud-acorus* and *foetidissima*) several of the other kinds make good water plants, particularly *I. sibirica*, a tall-growing kind with glossy foliage and flowers either of a rich purple or white. The beautiful Kämpfer's Iris, too, though not of large size, must be included in our list, as it flourishes best in wet places, and if such a position could be allotted to it where the water now and then could be made to flow over the soil for 1 in. or so in depth, it would, if planted in a peaty soil, flourish far better than in an ordinary border.

Among plants remarkable for fine leafage few excel the large Water Dock (*Rumex Hydrolapathum*), the leaves of which grow nearly 3 ft. long, and they are nearly 1 ft. across, reminding one of a Banana plant in miniature. In some situations it grows as much as 5 ft. high, and forms a bold plant close to the water's edge, where the roots would be continually submerged.

The Great Spearwort (*Ranunculus Lingua*) is another of our bold foliage native plants which grow from 3 ft. to 4 ft. high, and has long broad leaves of a pale-green colour. Its flowers are showy, being of a bright shining yellow, and more than 1 in. across. A position similar to that recommended for the last suits

from most water plants. *T. stenophylla* and *T. minima* are a like graceful plants, growing in tall dense tufts.

Pontederias, of which there are three species, are about 3 ft. high. They have arrow-shaped leaves and blue flowers of various tints, produced on stout stalks well above the foliage. The three kinds require to be planted in 1 ft. or so of water, and are therefore well adapted for planting a little way from the margin. Another noble plant which, unfortunately, is not quite hardy is *Thalia dealbata*, a Maranta-like plant from South Carolina, growing some 6 ft. in height, with large handsome leaves of a glaucous green hue.

Flowering Rush (*Butomus umbellatus*), one of our native plants, should adorn the margins of every piece of ornamental water, as it is not only an elegant plant as regards foliage, but its blossoms, which are produced in large umbels, are rosy tinted and beautiful.

The Water Plantain (*Alisma Plantago*) is a bold plant, which often attains 3 ft. in height. It grows in watery ditches and edges of streams; the leaves are broad, similar to those of the Great Spearwort.

Caladium virginicum is a noble Aroidaceous plant having large, broad leaves, arrow-shaped and of a deep green. It is excellent for planting in shallow streams or pools, in about 6 in. of water. It rises 2 ft. or 3 ft. in height in a manner similar

to the Callas or Richardias, which should on no account be omitted. Other highly ornamental North American water plants are the

Giant Horsetail (*Equisetum Telmateia*).—This is an extremely fine plant when fully grown, and one which attains several feet in height in moist, shady places, producing graceful plumes of pendulous, thread-like branches in drooping whorls of a cheerful green colour. It is by far the finest of all the Horsetails, but seldom seen in full growth. The finest group we ever saw was in the garden at Bitton, where Mr. Ellacombe had it growing near a wall, and there it had a very handsome appearance.

There are many other plants, which though not strictly aquatic, flourish well near water, and have a fine effect, as, for example, the group of Flame-flowers (*Kniphofia*) shown in our illustration, which was sketched from Nature last year at Longleat, where these plants were growing near water in great luxuriance. Other plants may be similarly treated, such as the Giant Knotweed (*Polygonum cuspidatum* and *sachalinense*), *Astilbe rivularis*, *Senecio japonicus*, North American Lilies, several of the larger Spiræas, Trollius, the Royal Fern (*Osmunda regalis*), *Lysimachias*, and many others.

W. G.



Colony of Butterbur (*Tussilago Petasites*) by Waterside.

it best. A flowering branch of this is well shown in our woodcut.

The Yellow Pond Lily (*Nuphar advena*), a plant with large, broad, deep green leaves, is one of the noblest of hardy aquatics, and the only kind that sends its leaves erect out of the water to as great a height as 3 ft. The bases of the plants should be submerged to about 1 ft. or 1½ ft. in depth. They should be planted in bold groups a little way from the margin, and surrounded by Water Lilies and other aquatics with floating leaves.

Butterbur (*Tussilago Petasites*).—This is a noble plant when in its largest state, and the accompanying illustration shows how pleasing a little colony of it looks by the banks of a stream, where it delights to spread. The Burdocks, too (*Arctium*), though they naturally affect poor, dry soils, attain enormous dimensions by the side of water, but they must not be planted so near that their roots are submerged.

Sweet Flag (*Acorus Calamus*).—This is a reed-like plant growing some 3 ft. or more in height. It is a very vigorous plant, and soon spreads itself over a wide area, and will overrun plants of weaker growth if not checked; it is, however, a handsome plant, and the highly aromatic leaves make it the more desirable. It should be planted at the base of a projection, or, better still, around an islet, so that it may be kept within bounds. The Bar Reed (*Sparganium*) is somewhat similar, but more tufted than the Sweet Flag, and not nearly such a rapid grower.

The Great Bulrushes or Cat's-tails (*Typha latifolia*), which in autumn are furnished with black, club-like flower-spikes, though abundant in many parts of the country, should always be planted where not indigenous, as they are so distinct in aspect

THE CARDINAL LARKSPUR.

(*DELPHINIUM CARDINALE*.)

I am pleased to see this fine Larkspur (so well figured in *THE GARDEN*) brought prominently into notice. Some seven and twenty years ago the introduction of a scarlet Larkspur was looked upon as an almost apocryphal acquisition; nor, in fact, was full credence given in regard to the matter till the plants were exhibited by Messrs. Veitch in bloom, and scarlet undoubtedly they were; but their miffy appearance at once betokened the fact that they were little more than biennial in character. In fact, they had no stay in them, and their appearance was scarcely properly heralded before they had disappeared; nevertheless, there was much interest at the time attached to the fact of such an unexpected colour presenting itself in a family whose typical colour was supposed to be blue. I remember well that the late Dr. Lindley was sorely puzzled in reference to this circumstance, as it militated against a theory he had formed with reference to generic colours, and which he contemplated even extending to Natural Orders. About the same time a further innovation took place by the introduction of scarlet Columbines from the same locality—first, *Aquilegia Skinneri*, and soon after *A. truncata*, both scarlets. Since then we have had blue Poppies from the Himalayas and many other exceptions, but we have not yet, in spite of all the endeavours of our florist brethren, obtained

either a blue Dahlia or a blue Pelargonium. Closely related as the last genus is to the Geranium, where blue flowers predominate, nothing in the form of a hybrid has ever yet been obtained; I have tried to raise one myself for several successive seasons, but have failed.

Returning, however, to the Larkspurs, and glancing at the plate (p. 234), I have a strong suspicion that the plant there figured is a different variety from the one to which I have alluded; at least it seems much more robust in growth and more floriferous, and I am confirmed in this by receiving last autumn from my friend Max Leichtlin a fine, thick, fleshy-rooted plant of the Cardinal Larkspur, which has broken vigorously, and shows at the present time a good tuft of the light green deeply-divided leaves, a distinctive character of this species. This was an agreeable surprise, as I scarcely ever expected to see it again in cultivation. During the summer, if all goes well, I shall be in a position to report the result of my experience; meantime, however, I dare almost prophesy that it will turn out to bear the same relationship to the original species, as does Mr. Thompson's variety *elatus*, to the original dwarf form of *D. nudicaule*; be this as it may, they are both desirable plants, and all the more desirable in their larger and more vigorous forms.

Having alluded to the second species, I may state that though



Rushes and Sedges by riverside.

belonging evidently to the same section of the genus, and having the peculiar fleshy fusiform roots, the two are perfectly distinct species. The leaves of *D. nudicaule* are much more entire, and vary also in the number of the lobes; the flowers are not so widely expanded, and the embryo has but one cotyledon, a most exceptional peculiarity; whereas the Cardinal Larkspur, like all its congeners, has the regular dicotyledonary mode of germination. J. C. NIVEN.

Botanic Gardens, Hull.

— My recollection of the Cardinal Larkspur goes back to the days when I was an under-gardener in Scotland. It was sent out with a great name, and was extensively grown the year afterwards, but many were grievously disappointed with it. It was stated to be scarlet, and no doubt those who sent it out had seen varieties possessing that colour, but none of those that were sent to Scotland were other than brick-red, and it would not establish itself with the other varieties in borders out of doors, either because it was not hardy, or the climate was unsuited to it. I am afraid *D. nudicaule* is much like it, both as regards colour and liability to be injured by our uncertain winters.—J. DOUGLAS.

Lilies from Seed.—Would some of your Lily growers please to relate their experience in raising Lilies from seed, and state the time the several species take from sowing till germinating, and the age of the seedlings before they bloom? I find that *L. tenuifolium* takes 8 days, *pulchellum* 10 days, *longifolium* and *davuricum* 21 days, between the sowing and germinating time, in a temperature

of 60°, but as I know there are many species that take months to germinate, I would like to hear from others on this subject.—WM. FALCONER.

SPRING CULTURE OF GLADIOLI.

As the period for the planting of these beautiful autumn flowering bulbs is at hand, and as I have been for many years a cultivator of them, perhaps a few remarks on the very important matter of planting may be useful to some who are commencing their cultivation. Like most other plants, there can be little doubt that trenching in the autumn is the best method of preparation of the beds, and where this has been done no further preparation will be necessary; but supposing that no such prepared beds are ready for the reception of the bulbs, my experience does not lead me to believe that it is absolutely necessary, but that they can be successfully grown without it. If beds have been well manured for the previous occupants, then a small quantity of well decomposed hotbed manure will be sufficient, but if not, it will be needful to dig in a considerable quantity; the danger of its being done now is that some of the manure may come in contact with the bulbs, and so occasion loss; but this may to some extent with a little extra trouble, be provided against. Let us suppose, then, that the beds, whether

they have been prepared in autumn or now, are ready; let the rake be run lightly over them, and lines marked out where the rows are to go. I think that 1 ft. is not too great a distance to allow for the rows, nor should the bulbs be planted nearer to one another than 9 in., and where space is not of much consequence 1 ft. may be allowed. There are various ways of planting where acres of them are grown, as with Mr. Kelway; they may be ploughed in as he does a large portion of his, or drills may be drawn and the bulbs planted at the bottom and then covered in this in the more ordinary way of planting; but where time can be given to it (and a boy can do this) I prefer taking out the soil where each bulb is to be planted, making the hole with the trowel about 4 in. wide and about 6 in. deep. Where there is any danger of the fresh manure coming into contact with the bulb I should fill in each hole with good fresh loam, placing a little at the bottom and then covering in. If the loam is at all stiff, sand and a little leaf-mould may be added to the loam; each bulb will thus be provided with some fresh soil in which to make its start. Where this is necessary the hole must be a little deeper than 6 in., as I never now allow the bulbs when planted to be nearer the surface than 6 in.; formerly I used to plant them not so deep, but a very

experienced and successful Scotch grower told me that he always planted at that depth, and that he believed the roots stood better the changes of temperature, and were in dry seasons less liable to suffer from lack of moisture. When the first row of the bed is thus ready it will be easy to arrange the bulbs for planting, and if it is thought desirable to obtain a proper mixture of colours the whole bed may be arranged previously in a garden book, and planted accordingly. Suppose your bed contains four rows and thirty in each row, select the bulbs, half-a-dozen scarlet, then the same number of white grounds, then the same number of rose-coloured grounds, then yellows, and so on. When you have taken from your store boxes, or drawers, or bags the number you require for a row, write them down in order in your book, and also have labels placed for them in the bed, for to get wrongly-named bulbs is a great nuisance, so that a little extra trouble is not thrown away. Before planting I always take off the outer skin, as this enables one to see if the bulb is all right, and if there are any black or brownish spots to cut them out; moreover, it enables one to see where the bulb is going to make its shoots. If on examination I find that there are two shoots I cut it in two, and where the variety is scarce this is a decided gain. I have always found that where this is done, the new corm formed is as large, if not larger, than is produced by those planted whole. Some growers I have known who cut up their corms into as many pieces as they see there are eyes in them, but I have never done more than cut them in halves. I am sure, too, this is helpful in

another way. If a corm has two good eyes, and one of these is in advance in throwing up its shoots than the other (as is often the case), it so absorbs the strength of the corm, that either the second bud remains dormant, or else produces a very slender shoot, and consequently a small corm. In planting I mark in my book those that are planted whole and those that are cut, so that I am enabled to compare the result when I lift them thus: Eugène Scribe, 3 whole, 4 cut. These may seem to be minute and unnecessary details, but I have so often found when I wanted information that these were the very things that people have never thought of writing about, supposing that everybody knew them. When I have planted the first row and then partially covered in and made the holes for the second row, proceeding in the same manner; when the three or four rows are completed, the holes are completely filled in and the bed lightly raked over. I have in former years used both sand and charcoal to put into the holes when planting, but I cannot say in looking back that I have found much benefit from so doing. My soil is not stiff; were it so, I should probably use some; but I believe if there is good drainage that the *Gladiolus* likes moisture, although, like others of its tribe, it is impatient of stagnant water about the roots.

The question is often put, What varieties do you recommend? and I think the answer to this must depend a great deal on the purpose for which the questioner wants them. There are many persons who see fine varieties at an exhibition, and think that they would like to have them in their gardens, but they are perfectly horrified when they hear the price, imagining that like a Rose they can be multiplied in great numbers; whereas all who grow them know how slow the process is. There are some varieties which spawn so very sparsely, that though they have been in cultivation for a dozen years or more, yet are quite as dear as some of those introduced within the two last years. I therefore subjoin two lists, one of French, the other of English varieties, divided into two sections, the first containing the cheaper varieties, some of which are very excellent exhibition flowers, the second; such as may be depended on for exhibition, having the characteristics of good show flowers.

French Varieties.—*Section 1.*—*Marguerette*, *Jeanne d'Arc*, *Madame du Vetry*, *Etendard*, *Colombine*, *Delicatissima*, *Eurydice*, *Norma*, *Phidias*, *John Bull*, *Lord Raglan*, *Charles Dickens*, *Redouté*, *Belle Gabrielle*, *Le Dante*, *Roscius Perfectus*, *Giganteus*, *Le Phare*, *Nestor*, *Semiramis*, *Molière*, *Le Poussin*, *Meteore*, *Meyerbeer*, *Madame Furtado*, *Racine*, *Horace*, *Robert Fortune*, *Schiller*. *Section 2.*—*Shakespeare*, *Madame Desportes*, *Hesperide*, *Baroness Burdett-Coutts*, *Conquête*, *Le Vésuve*, *Ovide*, *Pygmalion*, *Archiduchesse Marie Christine*, *Flamingo*, *Ondine*, *Atlas*, *Leandre*, *Pasquin*, *Horace Vernet*, *Matador*, *Pactole*, *Psyche*, *Murillo*, *Jupiter*, *Africain*.

English Varieties.—*Section 1.*—*Adonis*, *Attractive*, *Black Knight*, *Brennus*, *Countess of Pembroke*, *Erasippus*, *Hecate*, *Helenus*, *Undine*, *Hemus*, *Indian Chief*, *Jubilee*, *Julia Kelway*, *Lady of Lyons*, *Lentulus*, *Liger*, *Lord Napier*, *Venuleius*, *Miss Selway*, *Mrs. Reynolds Hole*, *Nitocris*, *Plato*, *Rival*, *Sibel*, *Sothis*, *Thyreus*, *Traitor*. *Section 2.*—*Admiral Willis*, *Ball of Fire*, *Cymbeline*, *Dr. Woodman*, *Dr. Woodford*, *Duchess of Edinburgh*, *Duke of Connaught*, *Earl Russell*, *Egyptian King*, *Electra*, *James Kelway*, *Lady Aberdare*, *Lady Bridport*, *Lord Ilchester*, *Orange Boven*, *Mrs. D'Ombraim*, *Pithys*, *Maximus*, *Queen Mary*, *Rev. H. H. D'Ombraim*, *Jessica*, *Rev. J. B. M. Camm*, *Mr. Marshall*, *Phillis Stuckey*, *Lady Leigh*, *Lord Beaconsfield*, *Galopin*, *Marquis of Exeter*, *Mrs. Dobree*, *Actæon*.

DELTA.

Senecio mikanioides.—This plant, I find, is utilised by the people of the Western Riviera for covering trellis work or as shelter for arbours, and as it is very leafy, and the petioles of the leaves are twisted for climbing, it is well adapted for the purpose it has to accomplish. It is, indeed, an evergreen climbing Composite, belonging to the *Asteraceæ*, and having much of the habit of the South American *Mikania scandens*, to which circumstance it owes its specific name. The flowers are yellow, and are produced in dense clusters in December and January. As is the case with the *Eupatorium*, the blooms consist solely of tubular florets, but these are so pretty and conspicuous that the strap-shaped florets are not much missed. The plant is of very rapid growth, and quickly covers over any wood-work or lattice-work it is destined to clothe. I have noticed it occasionally along the whole line of railway from Genoa to Cannes. I believe this climber is known on the Continent by the name of *Delacrea hederacea*. It is a native of the Cape of Good Hope, and was introduced into England in 1855.—PETER INCHBALD, *The Lodge, Hovingham, York.*

HARDY ANNUALS.

EVEN those who trust to tender subjects for creating a display in the open air should not allow their prejudices in favour of zonals and *Calceolarias* to prevent them from bestowing some attention upon the now large group of gay bright-hued plants known under the name of hardy annuals. Hardy indeed they are, for I do not see that they suffer much, even when subjected to 21° or more of frost; and, of course, the true way to employ them is to sow in the autumn, getting them into their allotted positions, and with a good grasp of the soil before grim winter comes to lock all in his close embrace. Then with the lengthening days these little plants wax in strength, and gradually but, all the more surely increase in health and vigour until their exertions culminate in a blaze of beauty, which comes just at a time when we wish as much as may be to forget the dreary time just passed through, and anticipate the joys and glories of summer. Failing this, the next best thing to do is to sow early in the year, as in their earlier stages of growth these hardy annuals appear to luxuriate in a cool moist atmosphere, and seem to evince a



Flowers of the Great Spearwort (*Ranunculus lingua*); much reduced.

special dislike to anything like a hurrying temperature. Still, even with this fact before us, it is well not to be in too great haste, or we may come to a full appreciation of the truth of the well worn proverb.

Let February pass, and then I would say the earlier the better, always providing that a good seed bed can be obtained, for the weather in the beginning of March is not always inclined to the dry side, and when, as is often the case, "fill dyke" month is unduly prolonged and heavy rains fall, keep your seeds in a dry place and wait until sun and wind obliterate their trace and render the surface free, friable, and porous. Annuals like that their nourishing organs should find stimulus in the midst of good food, but they love rather to be able to ramble freely in fairly enriched free earth than to find themselves all at once in a store of stimulating nourishment, which often forces them along for a time at a rapid rate, the vigour thus obtained not being lasting, but liable to depart when the great strain comes. Such being the case, all that we have to do is to stir deeply and thoroughly, and employ our nourishment so that it mingles easily with the whole body of soil. Then, again, we must treat our plants each one as an individual requiring so much breathing space, or we cannot expect to see them in their full beauty, for neither

in size or continuity of bloom will they be satisfactory when cramped and confined for growing space. J. CORNHILL.

LILIES, ANNUAL OR PERENNIAL.

ACCIDENTALLY, I think, I have ascertained the true name and character of Lilies and bulbous plants, given to them by no less an authority than the great father of botany, Linnaeus himself. I think I stated (p. 232) that if the Lily was not a perennial, "it was something else, whatever that might be." In looking over an old volume of the *Magazine of Horticulture* for 1855, vol. xxi., I found the following: "What is in common language termed a bulbous root is by Linnaeus termed the hybernacle, or winter lodge of the young plant. These bulbs in every respect resemble buds, except in being produced underground, and include the leaves and flowers in miniature, which are to be expanded in the ensuing spring. By cautiously cutting in the early spring through the concentric coats of a Tulip bulb, longitudinally from the top to the base, and taking them off successively, the whole flower of the next summer's Tulip is beautifully seen by the naked eye with its petals, pistils, and stamens; the flowers exist in other bulbs in the same manner, but the individual flowers of others being less they are not so easily dissected, or so conspicuous to the naked eye." Now what was well known by intelligent men 150 years ago has very recently been attempted to be elucidated by a great display of woodcuts and pages of description as a new discovery to show that Lilies are annuals; however, with all due deference to the undoubtedly correct view of the great botanist, I think we shall still call them by their now well known name of perennials if we are to continue any distinction among plants. C. M. HOVEY.

Boston, Mass.

I can settle one thing for those Lily growers who are discussing the matter of annual bulb growth. I have gathered thousands of *Lilium superbum* and *L. canadense*, and know what I affirm. These Lilies do make a new bulb entire each year. While the budding and blooming process is going on the bulb sends out a short rhizome, at the end of which a new one is formed. Sometimes on strong bulbs the rhizome will branch and two new bulbs be formed, both of which will bloom the following year; the old bulb never blooms again. If the new bulb be broken off, the old one will form several small bulblets. I have found in a wild state *L. superbum* with four old bulbs attached to the new one, making five strung lengthwise upon one rhizome. No doubt these back bulbs help to nourish the new one the same as the old growths of an Orchid help to nourish those which are new.—E. D. STURTEVANT, *Bordentown, New Jersey, U.S.A.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Hepatica and Hellebore Seed.—After several years of failure, I have been so completely successful in getting up Hepaticas and Hellebores from seed, that I must beg leave to add a postscript to Mr. Cornhill's letter (p. 206). Firstly, you must sow the seed directly it is ready to fall out of the pod; but that is not enough; put a slate or bricks right on the top of the seed bed—all over it—and about the end of the year peep underneath; you will find the seedling coming up "like one o'clock;" every seed will germinate. This system is infallible. Of course when once the seed begins to germinate take off the bricks; with this process you can sow the seed in the open air. I myself use boxes which are crammed full of seedlings from seed sown about May, every bloom of both Hepatica and Hellebore being crossed by hand.—FRANK MILES.

Ficus repens Hardy.—This neat, small-leaved climbing plant that clings to walls like Ivy has, I hear, withstood the late severe frosts in some localities. We have used it largely for covering shaded walls in houses when little else would grow; and as a proof of its wall-rooting properties, and how soon it becomes independent of its roots in the ground, I may mention that we cut off a quantity that had been started in pots for covering the back wall of a stove, and the tops continued to grow freely, being sustained by the roots it had made on the wall without any assistance whatever from ground roots. What we did consisted in merely keeping the wall moist. If it succeeds out of doors it will be a useful addition to our list of hardy climbers, for, in addition to its close, clinging habit, requiring scarcely any pruning, such as Ivy needs to keep it in bounds, it is very useful for garnishing and for indoor cut-flower decorations; its long sprays being very tough are admirably adapted for clothing the stems of tall trumpet vases, or for drooping over their edges, and it is very lasting in a cut state. It would doubtless keep cleaner out of doors than under glass. I should add that it is well adapted for rustic flower-stands

for rooms or windows, as it will keep healthy and vigorous in very little soil, and in shaded positions where little else will grow. Baskets edged with it and planted with hardy Ferns are admirably adapted for amateurs who like living plants in rooms.—J. GROOM, *Linton.*

Forming a Grass Plot.—The difficulty experienced by "F. C. M." in inducing his Grass to thrive arises, I think, from the soil being in a sour close condition, and therefore unfitted for the more tender roots of the finer Grasses. Too much care cannot be exercised in the previous preparation of the soil, for although the seed may come up fairly well, a good close carpet of Grass will never be formed unless the rooting medium is of a nature to allow of the roots travelling freely in it. I would certainly advise that the ground be well stirred up, and I would throw it up into rough ridges for a time until it gets thoroughly dried out and sweetened, allowing it to lay thus until the beginning of April, when, choosing a dry time, pull the ridges down, give a coat of rotten manure, and fork it well over, breaking all lumps and mixing the manure with the soil in a thorough manner. A few days after repeat the process, but always take care to choose a time when the surface is quite dry. In this way a good seed bed will be prepared, and the seed may be sown anywhere during April or May. If the natural staple is sandy, then a good dressing of loam, or marl, or some more holding material would be beneficial. Before sowing, rake the surface quite smooth, sow in dry weather, raking the seed well in. Cleanly culture is of the highest importance; every weed should be pulled up before it has time to encroach upon the Grass. Many a promising Grass plot has been ruined in its infancy through want of attention in this matter. By sending a description of the soil and stating the area to be sown to any firm making a speciality of Grass seeds, the proper quantity and quality will be sent.—J. C. B.

Renovating Grass.—Unless "F. C. M.'s" Grass plots (page 220) are very large his best mode of renovation would consist in laying them with turf. There are some soils and situations in which it is well nigh impossible to grow Grass from seeds, and yet it may live and thrive well in this same for many years when turf is laid down; in fact, it is a mistake to use Grass seeds for lawns of small extent. It takes considerable time for a lawn to get up into desirable condition from seeds, and young Grass is soon worn through. A good turf forms a lawn at once, and wears like a Brussels carpet. If "F. C. M." must sow seeds he had better dig over his ground and pick out all the weeds. A slight dressing of well-rotted manure might then be spread over the surface and raked over with a rough rake, so as to mix the manure with the surface soil, though it is very seldom that any ground is too poor to grow good Grass unless it is too wet as well as poor. If wet it will be needful to drain the ground before attempting to convert it into a lawn, for not only will the better Grass refuse to grow on wet soil, but a wet lawn, were the Grass ever so green, is practically useless. Assuming that the ground has to be drained, dug over, cleaned, and enriched, the sooner all these operations are performed the better. The middle of March or the 1st of April will be time enough to sow these Grass seeds, which had better be the best mixture for the purpose from some good seedsmen. Not a few lawns are spoiled in the making, and ruined ever after, by being sown with manger droppings full of weeds.—D. T. FISH.

—The cause of failure in "F. C. M.'s" lawn is very evident, viz., poverty. Sowing seeds is of little use unless the young plants are furnished with a proper supply of food. The next best treatment to breaking it up will be to root out all Thistles and other large weeds, remove as much of the Scotch Grass as possible with a sharp-toothed iron rake, give a liberal manuring and seeding, and cover the whole with about an inch of leaf-mould or exhausted hot-bed manure—grass manure or lawn manure applied at the rate of 8 cwt. per acre of 4840 square yards; and as to seed, by writing to any respectable seedsmen for lawn Grass seed, "F. C. M." will get what he wants. Without an occasional manuring, the same treatment will soon have to be repeated. Exhausted Grass plots do not often show great signs of improvement until after the second manuring.—JAS. CARTER & CO.

Carnations and Picotees for Exhibition.—To the question (p. 246) should these receive manure water, I answer decidedly, No. I have known manure water applied to them, but never heard of any good results being derived therefrom. The beauty of a Carnation or Picotee is the purity of the white ground, and manure water has a tendency to tinge this with a sooty shade, making what fanciers call a "muddy white." The time for repotting is now at hand, and if a good compost is used any further stimulant is unnecessary. To four or five parts of good yellow loam add one part of leaf-mould and one of rotten stable manure, with a good proportion of river sand. Tree or perpetual flowering Carnations require rather different treatment from the florists' section. They

continue to flower for a much longer period than the others; and when the pots have become well filled with roots I do not hesitate to give weak manure water to them at each alternate watering. The rich scarlet, crimson, rose, and other colours in Tree Carnations are, I think, intensified by the use of such stimulants. They are equally benefited, however, if rich surface dressings can be applied to them.—J. DOUGLAS.

Liquid Manure for Carnations and Picotees.—“Beginner” asks (p. 246) a question on this subject which will, I hope, institute a discussion which ought to bring to the front all the special cultivators of Shakespeare’s “Streaked Gillyflower.” If he can in any way obtain a copy of the “Florist and Pomologist” for 1876, he will find there, not only a series of valuable articles by Mr. E. S. Dodwell, the recognised authority on the cultivation of this bloom, but several interesting articles from the same and other sources on the very point which is the subject of his query. It is not only an interesting, but a much vexed question as to what extent the natural inclination to “sport” or “run” observable in the Carnation and Picotee is influenced by the application or non-application of liquid manure.—GIROFLE.

Zinnias.—Few annuals are more satisfactory than these when well cared for. The flowers exhibit great brilliancy of colour, and whether planted in beds, rows, or singly, they are amongst the most effective of summer blooming plants. Another point in their favour is that they bloom well up to the autumn, and that the blooms do not easily become injured by inclement weather, but retain all their freshness and gay colouring when many other bright flowering subjects present but a sorry appearance. I do not think that anything is gained by sowing before the middle of or latter end of March, as the young plants are apt to become somewhat root-bound and stunted for nutriment, when they have to stand for some considerable time before planting out, in which case they lose something of that fresh free growth which should at all times be maintained until they come into flower. Once the tissues harden to the extent of bringing the young plants to a standstill, there is but little chance of rapid progress being made when they are set out in the open ground. Neither is it advisable to plant out much before the end of the first week in June, as the Zinnia is very susceptible to atmospheric changes, and is completely ruined by a few degrees of frost. Plant in well-stirred fairly enriched soil in full exposure, for the Zinnia loves to bask in the sun’s fiercest rays, merely demanding a surface covering to protect the roots and plenty of moisture at all times.—J. C.

SEASONABLE WORK.

Flower Garden.—The month of February has struck a heavy blow in the spring flower garden, and where the beds are exposed to the east many failures will follow. With a good stock of stores on hand, filling up will now be the most pressing operation. Attend to pegging down and freshen the soil by dressing with leaf mould. Clip the edgings, weed and roll gravel, also turf, and make up for late bloom by the maintenance of neatness and order. Manure and fork beds when in a dry state. Turn old gravel walks, tread, rake, and roll, but defer surfacing with new gravel until danger from frost has passed away. Herbaceous plants may now be cut down; top-dress with light manure or charred refuse, which will give a neat appearance, and defer forking or pricking over until bulbs and other underground occupants have made an appearance. Place herbaceous Lobelias which have been wintered in frames or boxes in gentle heat; when fairly started, pull them to pieces and pot the offshoots singly in small pots, return them to a close frame, and harden off when well rooted. Calceolarias, being almost hardy, resent coddling. If too thick, lift and replant them on a sheltered border where they can have slight protection. Use equal parts of leaf-mould and new loam as a compost; pinch closely when ingrowth and water liberally. Propagate cuttings of split-up roots of blue Salvias and single Dahlias. Sow seeds of the latter and herbaceous Phloxes in pans of light soil, keeping them close and warm to bring them forward. Make up a small hotbed for Pyrethrum, which may be sown broadcast. For choice annuals plunge small 3-in. close together, fill with light soil, sow thinly, and protect them from heavy rain. Mignonette, Stocks, and Sweet Peas treated in this way come in useful for early cutting. Push on the propagation of all kinds of tender bedding plants; pot them off when ready, and grow on without a check. Propagate blue Lobelias by cuttings and division of the roots. A variety under the name of Brighton is one of the best for general purposes. If not already done, pot off Geraniums and keep them in a warm house until thoroughly established. All seeds from which flower garden plants are expected should be sown about the present time. This also applies to Asters, as these are very often sown too late to give them a chance of blooming before being cut off by frost in autumn. W. COLEMAN.

THE ROSE GARDEN.

PRUNING MARECHAL NIEL.

In the Rose culture of the future it is probable that almost every Rose will receive special treatment. Each has its own individuality of constitution, habit, affinity, merit, fault. Already the Maréchal has given rosarians a great deal of trouble to match it with a stock. I doubt, too, whether it is yet matched, though my friend, Mr. W. Allan, of Gunton Park, who grows fruit and Asparagus so admirably, thinks he has mated it for good to the White Banksian. This at first sight is one of the most unlikely stocks. It has also been tried and found wanting in durability by others, as, in fact, all other stocks have, as far as I am aware. It is just possible, however, that the fault may be as much or more in the pruning than in the stock, for the Maréchal is about as capricious and short-lived on his own roots as on the roots of other Roses. The Maréchal, as is well known, is a strong growing Rose when and where it does grow. It also flowers most freely when left almost full length, or at least a great length. Is it not probable (I put the question thus, as I wish to elicit the experience of others and avoid the appearance of dogmatism) that we have over-weighted the Maréchal, and so crippled him ever afterwards, just as so many noble hunters have been over-ridden by some reckless sportsman, and have been good for nothing more? One can hardly look at the profusion of golden flowers yielded by a single Maréchal Niel in its hey-day of pride and glory without trembling for the safety of the plant—golden petals heaped on petals of gold, till there is no strength left to manufacture stems to upbear the ponderous cupfuls of beauty and fragrance. What marvel if the plant is exhausted as well as the branchlets that bear the flowers? And they are. Hence the richest harvests of bloom are succeeded by a crippled state of the plants or their sudden death. If this supposition be true it follows that by reducing the harvest the plants might be the longer preserved in health. This could be done in three ways—by reducing the flowering area of the plant, thinning the blooms and as far as possible permitting the same shoots to bloom only once. The practice of allowing Roses shoots to bloom almost their entire length has probably been carried to extremes in the case of the Maréchal Niel. The flowers are so large, so numerous, and have such substance and weight, that the drain on the plant must be enormous. We are all familiar with the disastrous results of overcropping in the case of Vines and other plants. In these the current crop is arrested and ruined and the crops for several succeeding years imperilled. The Maréchal, more impetuous, gathers up and expends all its force, and virtually dies there and then on the field of the cloth of gold and of glory. By lessening the area of its work by pruning, or the amount of it by thinning the buds, the plants might have ripened their golden harvest without injury.

There is yet another mode of securing a good bloom and of prolonging the life and sustaining the vigour of the Maréchal Niel Rose. The flowering wood might, as far as possible, be treated as annual. As soon as it has flowered cut it out bodily. The system of the annual cutting out of leading limbs or branches, once established, would ensure an abundance of bearing and succession wood. It is, however, more adapted for indoor than outside culture, as without protection the frost, as we have found to our bitter experience, not infrequently has made a meal, not only of our last year’s flower-shoots, but of those provided to take their places next year. Will Rose growers kindly favour me with their views on these modes of prolonging the life and preserving the health of the Maréchal, which, as Canon Hole so well says, is one of the most beautiful plants of the world? As for “precedence,” however, the less said the better, though if compelled to elect one Rose, give me a tinted bud of *Devoniensis* before any or all of the golden beauties in the world. D. T. FISH.

Old Plants of Marechal Niel.—In reply to “Peregrine’s” inquiry (p. 145), allow me to say that there is a plant of Maréchal Niel in Messrs. Robson and Bush’s nursery, at Altrincham, which is about ten years of age. The buds were inserted in a Cloth of Gold that had previously been budded on a Brier. The Maréchal now covers about 400 sq. ft. of trellis, and annually produces thousands of beautiful buds. Although it is not so robust now as it was when four or five years old, it nevertheless still appears to be healthy. There are other examples of Maréchal Niel in this district, varying from eight to ten years of age, some of which are budded on the Brier and others are on their own roots. I may also say, although it does not meet the requirements of “Peregrine,” that we have a plant here budded on the “Cellini” stock, which seems to suit it very well. It is now three years old. Last year it made over 100 ft. of growth, and is now thickly set with buds. I attribute the cause of sudden death in the case of this Rose to not thinning the buds sufficiently early, and also to not giving sufficient nourishment

during the period of flowering. If cultivators of this Rose would give it an abundance of liquid manure, and also an annual top-dressing of strong loam and manure, I think there would be fewer sudden deaths to record in its case than we have.—W. NEILD, Wythenshawe, Northenden, Manchester.

HOW FROST PRUNES DWARF ROSES.

THE frost gives us two lessons in pruning: the first relates to the time, the second to the extent of it. As to the time, it is generally early—this year, for example, from the middle to the end of January. This, most rosarians would consider, a month or six weeks too early. For many years I have advocated the late pruning of Roses. Admitting the loss of vital force in the breaking of the top buds before pruning, the base buds were retarded until they could break with safety. Safety with some measure of weakness seemed preferable to strength with the danger of a frost nip on the fat buds. However, it is very easy to carry the practice of late pruning to extremes. Left to herself, Nature always sends her best to the front, that is, the highest buds. She goes on filling these all winter. The buds at the base of the shoot receive little or no share in this slow and sure filling. Hence it follows they are left lank and lean while the nourishing juices pass on and into the top buds. When these are cut off there may neither be time nor material to fill or to fatten up these lean buds into full grown Roses. Thus many flowers lack substance probably through late pruning. But the early frosts, by pinching the shoots or cutting them right down, as so graphically described by Canon Hole in his "Garden Thoughts" of last week, when friends declared his Teas all dead, prevents the dissipation of their strength in early top buds and concentrates their vital force into their root stock or crown buds.

No one who has seen the huge fishing rods that often spring forth from the ground line of these frozen plants but must have learned a useful lesson on early and severe pruning. I confess these accidental illustrations have modified my views and practice of pruning, and though I am not prepared to prune in December and January, as the frost so often does, we shall prune a month or six weeks earlier than usual, that is, at once. Unfortunately, however, or perhaps in the end, fortunately, the frost has been beforehand with us in many cases, and every day reveals greater and deeper injury, especially to our standards.

The frost is not merely an early, but a hard pruner. Where we would leave 3 ft. of wood it often does not leave 6 in. This winter it may in general terms be said to have cut down to the mulch or snow lines. Hardly a Tea Rose escaped above these. It may not be expedient to follow the example of the frost in the severity of its prunings; still, we cannot help learning from it the lesson of how best to resuscitate worn-out or revive semi-dead Roses. Cut down the top to the ground line, is the short, incisive lesson of the frost.

The practical lesson seems to be that we may safely prune more severely than we do, and also that the weaker the Rose the more it should be pruned. It matters little how long strong shoots are left, but the weaker ones should be cut back to a few eyes. Sufficient buds, however, must be left to yield flowers which the frost is not careful to provide for, and it must be borne in mind, therefore, that while its severe prunings may afford useful lessons, the frost is by no means to be blindly followed as a guide to prune by, as otherwise our Rose harvest may indeed prove scant and unsatisfactory.

D. T. FISH.

ROSES UNDER GLASS.

CANON HOLE has seldom uttered a garden thought more *apropos* to the season than that more Roses should be grown indoors. No doubt the back walls of Vineries might often thus be clothed with fragrance and beauty with but little injury to the Roses and none to the Vines. The back walls and roofs of corridors, verandahs, &c., should also be clothed with Roses wherever practicable. Few plants, not even excepting the Tacsonia, are better adapted for the roof and rafter furnishing of conservatories than the Rose, and it is surprising how seldom they are employed for such purposes. The introduction of *Maréchal Niel* did something to better this state of things. Its success as a roof climber has been complete, and has led to the introduction of others. Roses have been objected to for such purposes owing to their liability to the attacks of fly and thrip. But both are easily destroyed if taken in time, and Roses are less liable to insect pests than most of the plants employed for these purposes. It is needless to add that no plants can rival Roses in the verdure and beauty of their foliage and the infinite variety of form, size, colour, and fragrance of their flowers. I would strongly recommend the Banksian in either of its three varieties, Fortune's large white, and the common white and yellow as stocks for other Roses in conservatories. Instead, however, of

merely working such Roses as *Maréchal Niel* or others on the stocks and suppressing the stock, it would be better to allow the stock to form the main leaders and also to furnish a few flowering shoots and sprays of foliage, thus adding to the richness and gracefulness of the general effect. By inserting buds of the finest Tea or other Roses at various points, the quantity of the Banksian could be regulated at pleasure. The same principle could be adopted where the *Maréchal*, *Gloire de Dijon*, or any other favourite Rose is employed as a stock, or as the chief flowering Rose. Other sorts and different colours may be inserted here and there with the happiest results; and as nothing pleases so much as the unexpected, these apparently chance sprays are sure to command admiration. This mode of budding also gives more variety in limited areas and affords more change for bouquets, &c. It is also useful in affording most useful practical hints on the most suitable stocks for different varieties. Occasionally some of the Roses budded will do exceptionally well on given stocks in special positions and such should be left to occupy the major portion of the space. It used to be a great fancy among fruit growers to have as many varieties, and sometimes species, as possible on one tree. The practice was carried to ludicrous lengths, but the absurdities of the fruitists need not be repeated by rosarians, though large roofs furnish wide fields for such interesting and useful experiments as the growing of many Roses on one stock, while the richness of the mixture may be added to by a spare or liberal addition of the flowering or leaf sprays of the stocks themselves.

This mode of working any number of choice Roses on the same stock is also a most useful one for utilising common Roses that may frequently be found in out-of-the-way places under glass. These may be budded or grafted with superior kinds, and thus the space kept covered with flowers and foliage. Even where Roses have larger areas, or a house to themselves, there is apt to be, from inequalities of growth, an excess of one particular Rose and a scarcity of others. Returning once more to the *Maréchal*—a roof plant with five hundred flowers is apt to prove embarrassing to most rosarians not in the trade, but such a plant might be worked with six or a dozen of the best tender Teas, thus somewhat curtailing the supply of golden Roses, and adding instead every desired variety of tint and hue. No doubt there would be a tendency in the stronger growers to rob the weaker ones, but much of this might be counteracted by training, pruning, and culture. And these would but increase the interest and heighten the pleasure of the rosarian, to whom the single roof or rafter Rose under glass would often become, as it were, an entire Rose garden, every member of which would be safe from the cruel severities of the weather. Of course all this is but one phase of Rose culture under glass. No plant is more worthy of a house, large or small, all to itself than the Rose, and that phase of its culture, and also to its forcing *en masse* and in detail in pots may be adverted to on a future occasion.

D. T. FISH.

HORTICULTURE IN IRELAND—SCHOOL GARDENING.

I HAD written a few observations on the latter subject supplementary to those of Mr. Groom (p. 93) referring to England, principally with the view of soliciting the aid of THE GARDEN and its influential readers for the extension of "School Gardening" in Ireland, when I saw the note "Horticulture in Ireland" (p. 116), and, with your permission, I may appropriately connect the two. Without alluding to politics, which are properly excluded from THE GARDEN, writing even from what was once the centre of "disturbance," I should like to speak hopefully of the future of gardening in Ireland. Though the times are to a certain extent out of joint, though only as regards the full payment of rents principally—for life was never known to be more secure than within the past few months—yet this curtailment has in many instances told on the higher gardening prospects. If horticulture is, however, to be generally extended in Ireland, knowing the country fairly well, I think I am justified in thinking one of the most feasible means of doing so is to begin at the beginning—teach it in the national schools, in the agricultural schools, and in the workhouse schools. Permit me to refer to the feasibility, not to say the desirability, of teaching gardening both theoretically and practically in each, and first one word as to the theory of gardening, such as might be found in a cottage garden handbook, that children of the advanced classes might use. Seven-eighths of the children of Ireland are found in those schools, and they are all in connection with the National Board of Education, as a rule. Private schools may be left out of view. The National Board has an extensive school book list from which pupils attending those schools can procure books at reduced rates, music and philosophy included. Yet there is not a single book on gardening or horticulture, except a primer by the late Mr. Campbell, of Dublin, on "Vegetable Culture," published

forty years ago. So much for the first difficulty in the way of teaching the theory. Taking the schools as named with the view of practical teaching, the first and most numerous are the

National Schools.—For the successful teaching of gardening in those schools at least three preliminary points must be considered. (1) A piece of land attached to the school; (2) the teacher to be fairly competent to manage it; and (3) facilities for the children to profit thereby. I maintain, from a full acquaintance with the subject, that all three are not only possible and desirable, but perfectly feasible. But, unfortunately, the number of schools with a teacher's residence and small garden attached is only a fraction of the total number, and consequently, as this is a *sine qua non* before growing either vegetables, flowers, or fruit, it becomes of less importance in the first instance to inquire what abilities or facilities national teachers have for conveying horticultural knowledge to their pupils. Teachers on training—which extends only for a few months—go from Marlborough Street to the Government Agricultural Training College at Glasnevin once a week, and see as much as their eyes can take in of the gardens attached thereto; but as gardening is not a subject taken into account when granting the certificates that determine their future rate of payment it receives little attention. Yet, when they return to their schools in the country, especially if there is a garden attached to them, who will maintain that both to the teacher and his family, and his pupils, and the example it might be to his neighbours, that this subject does not become of primary importance? This is all the facility the Government places in the way of national teachers when training for their profession; though I am quite sure there is hardly a member of the Board of Commissioners administering the national system of education in Ireland who would not vote for placing within the reach of their teachers and pupils an approved hand-book on gardening, and insist on its being occasionally—say once or twice a week—used as a class book with the higher classes in every national school in Ireland, as hand-books on agriculture are used at present. Gardens would soon be added to schools that possess none, where possible and teachers would vie in seeing who had the best managed gardens; which might be expected to become a centre of horticultural enlightenment in the district. Might I hope that THE GARDEN would think this suggestion deserving its advocacy; and details of interest might be added, such as ladies or gentlemen in their several localities examining a gardening class occasionally, and offering small prizes both to teachers and pupils for proficiency in theory and practice. I must candidly say this view is not quite original, for in one of the last issues of THE GARDEN, in an article on Japanese Gardening, I noted "The Japanese are all taught gardening in the schools, and all have their little plots of ground, in which they are instructed in practical horticulture." Should the people of England or Ireland lag behind Japan, even in this respect? Looking into the future, one may exclaim "Here, at least, we are safe from American competition!"

Agricultural Schools.—Most of the foregoing observations will apply here with greater cogency, for in every instance there is land attached. The central institution is that inaugurated at Glasnevin by the late Prince Albert, and under the immediate supervision of Professor Baldwin and skilled horticulturists. The vegetable, fruit, and flower gardens and houses are on the most approved principles; and in my time lectures were delivered periodically to the students by the late Dr. David Moore, from the adjoining Botanic Gardens, and also on practical horticulture and collateral subjects. Similar auxiliary institutions were scattered all over Ireland; but, from motives of economy, very many of them have been discontinued by the Government. There is, however, another class, all in connection with the National Education Board, under the patronage and on the property of some nobleman or gentleman, as, for instance, those in the counties of Carlow and Kilkenny, maintained by the late and present Lord Besborough. Several acres of land are attached to every school, at a nominal rent, with gardens and out-offices, and cultivated in a model style—examples to all the country around, and well deserving of imitation.

Workhouse Schools.—I cannot intrude further on your space than to say that those institutions possess the greatest facilities of all for teaching gardening—the land is there; the children are always there; and vegetables must be grown. To the credit of the officers it must be said that flowers are largely grown too. Late speaking to the Rector of Slough, he told me the greatest florist, excepting Mr. Turner, in his locality was the master of the workhouse.

Clonmel.

W. J. M.

Exhibition of Garden Labels.—Will you allow me to ask those of your readers who use at all uncommon plant labels,

and all label makers, to send specimens to the Society of Arts, John Street, Adelphi? It was thought better to offer the prize through it, in place of the Royal Horticultural Society, in order to bring a fresh class of heads to consider the subject. I expect a good exhibition.—GEORGE WILSON, *Heatherbank, Weybridge Heath.*

THE GARDEN FLORA.

PLATE CCLXXIV.—MOORE'S CRINUM.

(C. MOORE.)

ALTHOUGH nearly a score of years in the country, this beautiful plant is still scarce, chiefly owing to the difficulty experienced in propagating it. Its history is somewhat obscure. Seeds of it were sent to the late Dr. Moore from South Africa by Mr. Webb, but the precise locality from which it came has never been ascertained. For some years it was cultivated in the stove, and as it did not flower freely there, Dr. Moore determined to try it outside, the result being in every way satisfactory. The first year it grew vigorously, but was killed almost to the ground in the winter. Next spring it pushed up a fresh crown of its handsome broad leaves and flowered in the autumn, when it also produced offsets. As these grew strong enough they also flowered, some of them in the spring and some in the autumn, so that from a strong clump there are two flowering periods—the strong bulbs flowering in May and June, the weaker in September. It was followed to its outside quarters by *Crinum amabile*, *C. scabrum*, *C. ornatum*, and *C. longifolium*, all of which, though coming from such a variety of localities, have done well and flowered. *C. longifolium* is the most remarkable of the whole group; it grows about 3 ft. to 3½ ft. in height, and produces numerous leaves, which lie prostrate on the ground, and frequently attain a length of from 5 ft. to 6 ft. The flowers of *C. Moorei* surpass in beauty those of any other species cultivated at Glasnevin. They are openly campanulate, very sweetly scented, of a delicate rose colour, and of great substance, lasting well when cut. The segments of the perianth are broad, the edges overlapping in the fully-expanded flower. The colour is most intense towards the tips of the segments, gradually fading away to almost pure white in the centre. The spathe of this species are also prettily coloured.

Culture and Position.—All the *Crinums* when growing freely produce a large number of long fleshy roots, so that the ground in which they grow should be well broken up to a depth of over 2 ft. The bulbs should be planted deeply and close to a warm, sheltered wall in a good, rich compost. The great secret of success is to leave the plant undisturbed when once planted, the only attention which it requires being a good protection of leaf mould heaped round the crown in winter before the leaves rot down. Leaf mould is far better than ashes for this purpose.

F. M.

FREESIAS AND THEIR CULTURE.

THESE fine additions to our greenhouse bulbs from the Cape are not nearly so well known as they should be, for their uses are innumerable and their culture so easy that they should certainly be in every place in which there is even a frame. This season we treated our stock as follows: We potted six bulbs in a 6-in. pot on the 24th of July, 1880, the top of the bulbs being about 2½ in. below the surface of the soil—a compost of fibry loam, sand, and thoroughly decomposed manure (old hot-bed), with a slight dash of peat and wood ashes. After being potted they were placed in a Vinery from which the crop had been cut; here, of course, they received plenty of air, but were not abundantly watered until the foliage began to show up, which was in about six weeks. They were kept in the same airy house till the middle of January, when they showed abundance of flower-spikes. Early in that month they were tied up, each plant to a slight stick about 15 in. long. F. Leichtlin, however, does not require such long supports. They were then removed to a span-roofed house, containing *Pelargoniums* and a general collection of plants, and ventilated on every favourable opportunity. They had now occasionally a weak application of guano water or Standen's Manure sprinkled over the top and mixed with the surface soil. At first they appeared to be very weak, not even sufficiently strong to maintain their flower-

spikes, but the stems gradually thickened, and the result was all that could be desired. The first long-looked-for bloom expanded on the 7th of February, and then there was a rapid succession. The arrangement of the smaller spikes on the main flowering shoot is like that of the *Sparaxis*. The flowers on the centre spike open first, and are uninterruptedly succeeded by those on the side shoots, and I feel confident that by adopting the ordinary methods of advancing and retarding their blooms, they might easily be had in flower for two months. When the first bloom-spikes appear, for instance, let them be taken to a warm house and placed in a good sunny position; while for late flowers, another lot might be grown in a light, well-ventilated, cold frame. Abundance of light is, with *Freesias* as with nearly all Cape bulbs, an absolute necessity.

F. Leichtlini, *refracta alba*, and *major* are the only forms with which I am acquainted, although they appear in catalogues under different synonyms. *F. Leichtlini*, the first form introduced, I believe, greatly resembles a *Tritonia* of the crocata section. It is of a clear creamy-yellow colour, mottled in the throat with deep orange and sweet scented. This variety is most useful as a dwarf pot plant. Its foliage, which is much broader than that of any other of the genus, varies in height from 6 in. to 1 ft. Of *F. major*,

tiny white or rather cream-coloured blossoms, which are produced plentifully in summer and autumn in the manner shown in the annexed woodcut. It is a native of Japan, and has been long introduced to cultivation, though even now by no means common. Though not so hardy as its two congeners, *O. aquifolius* and *ilicifolius*, which have withstood the late severe cold better than most other evergreens, it is tolerably hardy, even in open quarters, and quite so if planted against a wall. Mr. Stevens, of Byfleet, to whom we are indebted for the specimen from which our illustration was prepared, grows it successfully in a portion of his garden, which is protected on all sides by high hedges, a spot in which all shrubs of a similar degree of hardiness flourish.

W. G.

THE INDOOR GARDEN.

DAPHNE INDICA.

I SHOULD imagine that "F. J. G.'s" plant of this *Daphne* (p. 173) has been at some time overpotted, a fate which too often overtakes this sweetly fragrant greenhouse subject. This *Daphne* is generally propagated by the trade by grafting on the *D.*

Mezereon, and this is the proper manner of increasing it, as it grows more freely than when on its own roots, and is not so liable to suffer from an overdose of water. Seeing, however, the ease with which this plant is propagated by means of cuttings, the temptation to increase it in this manner proves irresistible to many, and the consequence is that many of the specimens found in small gardens prove a source of annoyance to the owner, owing to the inability to keep them in anything like a free healthy bloom-bearing condition. Not that there is any great difficulty in preserving the plant in health when growing on its own roots, but small growers are generally so anxious to be shifting their plants, that they almost invariably get this *Daphne* into too large a receptacle, in which case it is almost certain to get at some time an overdose of water, and the roots get into an inactive state, from which it is difficult to move them. The great secret is in the first place to bring the plant into a root-bound state, feeding for a season, instead of shifting, with weak liquid manure; then giving a slight shift, the fresh body of soil is quickly filled with fibres. To ensure maintaining this *Daphne* in robust health, the head of foliage should always be somewhat out of proportion to the size of the pot, so that the moisture poured into the soil is quickly utilised. There need be no apprehension as to the roots not having a sufficiently large feeding ground, for this plant, like the *Camellia* and some other hard-wooded subjects, appears to be able to sustain life and even vigour when the soil becomes and remains for several years packed with fibres, and a thorough top-dressing of some concentrated manure can always be given

when signs of diminishing luxuriance show themselves. When a *Daphne* has got into a thoroughly bad state of health, there is only one way of restoring it to its normal condition; the cause of decay laying at the roots, these must once more be brought into good working order before the foliage can again assume the hue of perfect health, or that free circulation be induced so indispensable to the formation of vigorous flower-bearing wood. Superabundance of food having induced disease, the supply of nourishment must be reduced, and that given must be of a health-giving, easily-assimilated nature. Let the soil in the pot get nearly dry, and then work away as much as you can of it with a pointed stick, carefully avoiding the least injury to active healthy roots, and cutting back diseased ones to the sound portion; then cram the roots in a pot just large enough to hold them, and fill in with very fine sandy peat. The best time for carrying out this work is just as young growth is being made, and the plant should be kept warm for a time until new life is thrown into it by the renewed action of the nourishing organs. Water carefully until signs of healthy growth are discernible, and then give more liberal supplies. The first year will tax the patience of the grower, as there will be apparently but little progress; but the vital energies of the plant being restored, the following year



The Sweet Olive (*Osmanthus* (*Olea*) *fragrans*)

little can be said; its colour is an undecided yellow, and the flowers are small, at least so they proved with us. It grows from 15 in. to 18 in. high. *F. refracta alba*, on the contrary, may be looked upon as the very cream of recent introductions from the Cape. It is, I think, destined to be a favourite with the London bouquet people, and also for general cultivation. Its white, though pure, is slightly relieved by a tint of yellow, and also occasionally by a few pale lilac streaks half way down the tube. The stem is refracted, so as to make it the *beau ideal* of a bouquet flower; its fragrance, too, is delightful, and the power of endurance of the flowers in a cut state is well known. Even the unexpanded blooms open after being cut. This variety varies from 1 ft. to 2 ft. in height.

H. C. S.

THE FRAGRANT OLIVE.

(*OSMANTHUS* (*OLEA*) *FRAGRANS*.)

THOUGH not very remarkable for handsome foliage, showy flowers, or portly growth, this modest little evergreen is nevertheless most desirable, on account of the exquisite perfume of its

will see it entering into a new vigorous life. And now a word as to shifting this *Daphne*. Never do so until the points of the young shoots declare themselves, for until then the roots are not fully awake to their full duties, and are just as likely to be sulky and resent the disturbance by declining to enter the fresh body of nutriment as not, in which case there is a danger of their decaying at the points. I should like to see this fragrant plant in every greenhouse, and I think many more would grow it could they succeed in flowering it well year after year. I would advise intending purchasers to get it if possible in the grafted state, as it then does not need so much care; and to remember that, when on its own roots, to use nothing stronger than peat, whereas on the Mezeion good loam may be employed. J. C.

Byfleet.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Pandanus Veitchi.—One of the most useful of plants for dinner-table or vase decoration is this Screw Pine. It is of such a graceful habit, and the leaves are so exquisitely variegated, that it is the very ideal of what a decorative plant ought to be. We grow young plants of it from the suckers that are formed freely round the base of the large plants, and which, if potted singly in 3-in. pots and plunged in a propagating pit, quickly emit roots; they are then shifted into 5-in. pots and kept up near the glass; elevated on another pot to keep them clear of the foliage of other plants, when they quickly develop into beautiful little specimens. After they have done good service as dinner-table or single vase plants for the drawing-room they may receive a liberal shift, and will make fine specimens for large vases or exhibition. The leaves are much smoother than those of *Pandanus javanicus variegatus*, and indeed *P. Veitchi* is altogether preferable for decoration to that plant. It is not liable to insect pests, and when used for indoor decoration is easily freed from dust. A good sponging occasionally with soapy water, made by dissolving a little soft soap in hot water, is a good preventive against scale, and gives the leaves a fresh, glossy look. We find it to succeed admirably in turfy loam, peat, leaf-mould, and sand, and any one having old plants with suckers at the base could not have a more favourable time than the present for increasing their stock, for, taken off carefully with a heel of firm wood, and divested of a few of the lower leaves, every cutting may be relied on to make a good plant. The leaves should be carefully tied up to a small stake until the plants are well rooted, and should be kept moderately dry to prevent rotting.—J. GROOM, *Linton*.

Begonia Dregei.—There are few more pleasing late autumn and winter flowering plants than this, but its value as a decorative plant much depends upon the manner in which it is grown. It is a plant that, although of free growth and easy culture, requires more attention being paid to its particular wants than it is apt to get. One often sees it grown in a miscellaneous collection of stove plants, where it not only does not get breathing space enough, but is robbed by its neighbours of that amount of light and the free circulation of air which is absolutely necessary for the formation of specimens at once compact, vigorous, clothed to the rim of the pot with foliage, and studded with bloom. There is a way of growing this *Begonia* which is simple, easy, and eminently satisfactory, a method not much resorted to, I think, in this country, but much practised in Germany, where this little plant is a great favourite. Cuttings being taken off and struck in February are grown along in warmth until they come, by the end of May, into 2½-in. pots. They are then planted out in light frames in free nutritious compost, are afforded a free circulation of air in fine weather, and are exposed to all the light possible, only shutting away the hottest rays of the sun with a thin shade. By the beginning of September plants are formed capable of affording a vast amount of enjoyment far into the winter months.—JOHN CORNHILL, *Byfleet*.

Chrysanthemums (Few or Many-flowered).—Allow me to trouble you very shortly in order to put some of your too imaginative correspondents right as regards what I said about Chrysanthemum flowers and buds, a subject of no great importance either one way or the other. I have not "discussed" the matter with anybody. I am ready to confess at the outset that I am not "thoroughly initiated into the secret" of producing "from four to nine flowers" to a plant twelve months old, nor am I likely to learn. My plants produce from twelve to twenty times as many flowers, and the secret is an open one. The flowers sent to the editor of THE GARDEN were cut at random from many varieties to show the habit and beauty of the plant when cultivated by the *non-initiated*, and when the editor passed the flattering encomium upon them that "no flowers could be handsomer, though quite in clusters on every shoot," I venture to say he did not exceed the mark. With regard to the habit of the Chrysanthemum, what I said was this (p. 630, Dec., 1880): The habit of the

Chrysanthemum is to produce a number of flowers on each single stalk, the number depending upon variety and culture. Pompones produce the most, but the larger and finer kinds often produce five and six good flowers, while many more buds form that never get beyond the rudimentary stage. The terminal flower on each stem is almost invariably the largest and finest, but sometimes there is not one, but several terminal flowers, and they are then nearly all equal in quality. Now I challenge any Chrysanthemum grower whatever to produce a Chrysanthemum plant just coming into flower to which this description does not apply—the plant to be cultivated as highly as may be desired, only that the shoots are to be permitted to grow naturally, without pinching, and straight up; no objections, of course, to staking the stems or thinning them out, but otherwise they are to be allowed to develop naturally. Under such conditions the first flowers of the Chrysanthemum, like those of the Strawberry and some other plants, are the best flowers, and they are "almost invariably" borne at the top of the shoot. Numbers of the tops sent to THE GARDEN office had one large fine central flower and a number of rather smaller set closely around it like rosettes, the whole forming a very beautiful group. Other shoots, again, had three top flowers or so, and smaller ones on the same stem under them, and I do not think we had a single Chrysanthemum shoot on the place that was not like either the one or the other of these.—J. S. W.

Eucharis amazonica not Flowering.—A good deal depends on the size and age of "L.'s" plant (p. 220). It may have been too young or too weak to flower. Small plants may not flower for a year or more. Stoves, too, vary so much in temperature that the term is too vague. If "L.'s" was kept at 70° or 80° that ought to have suited the *Eucharis*. Again, it may have been kept too dry in a Vinery. It does not answer to dry off these plants so that the leaves wither up or even flag severely. The Vinery might also have been too hot to cause a sufficient disparity of temperature between it and the stove. We generally use a cold pit or the open air for checking the *Eucharis*, and seldom fail to have it flower freely. A bottom heat of 75° immediately after the cool treatment not seldom forces the *Eucharis* into flower more quickly. When placed in heat, it should be watered freely. Abundance of roots slightly pot-bound, and a rather crowded state of the pots or pans with bulbs are highly favourable to the free flowering of the *Eucharis*.—D. T. FISH.

Violets in Pots.—If the plantation from which it is desired to propagate is in a crowded state, I would advise that the plants be all taken up, the old soil shaken from them, planting them out again some 6 in. apart in free rich soil. The best plants for early flowering are those obtained from runners made in spring, and these cannot well be obtained in good condition where the parent plants are closely crowded together. Where the stools are some 6 in. apart there is no need to disturb them, but a surface dressing of some good free, light compost should be applied, into which the runners may freely root as soon as they form. Should hot dry weather ensue in the spring or early summer keep the soil well moistened, and when the young plants are well rooted take them up carefully and set them out on to a well enriched piece of ground in rows, some 9 in. apart, allowing 6 in. from plant to plant. Mulch them well with rotten manure, keep them free from weeds, water when needful, and sprinkle overhead twice a day in hot parching weather. If possible the position chosen for them should be screened from the midday sun. About the latter end of September they may be taken up, some of the soil shaken away from them, and the roots crammed into 6-in. or 4-in. pots. Place them in a frame or in a cool, well-ventilated structure, and they will come finely into bloom by the winter.—J. C. B.

Cutting Down Pelargoniums.—Soon after flowering is the best time for cutting down zonal and, indeed, all other Pelargoniums, but if "Amateur's" (p. 246) flowered very late it is better to defer cutting them down till February than to cut them down in November; that of all months is about the worst in the year for cutting down Pelargoniums or any other plants. The damp is at its worst and growth at its lowest ebb, and these two conditions meeting, rottenness follows as a matter of course. All the earlier flowering zonals should be cut down in September, allowed to break an inch or so in the same pots after beheading; then shake out, reduce the balls as much as may be put in small pots, keep rather close for a fortnight or so, then give more air and winter in a greenhouse at a temperature of 45° to 50°. This suits zonals far better than the lower temperatures often recommended. To flower zonals through the winter or early spring 10° more heat with full exposure to light are indispensable. "Amateur" may safely cut his zonals now. Keep rather dry after cutting until they break; then reduce, pot in light compost, and proceed as above directed. The plants will flower late, but will come in well for September flowering.—D. T. FISH.

Sparmannia africana.—Perhaps my experience in reference to the culture of this plant may be of use to your correspondent (p. 70). I have two plants of it in full bloom in my greenhouse at the present time, where they have furnished me with abundance of blossoms for more than a month. The plan pursued with them is to keep them in their present quarters till about July, when the pots are placed under a south wall in full sunshine, where they remain, under no special treatment, till the fear of frost requires them to be again placed in the greenhouse. I consider this plant to be decidedly easy of culture, needing little heat, but an abundance of fresh air and sunshine. My greenhouse was only warmed with a paraffin lamp last winter, and yet the plants seem more full of flower than in any previous year.—S. S., *Worthing*.

Chinese Primroses.—Few people save their plants of these for flowering the second year, and unless the varieties are very good it is not desirable to do so. When, however, a first-rate kind has been obtained the best plan is to remove the flower-stems after the beauty of the blossoms is over and place the plants on a shelf near the glass in an airy house. Water sparingly until May, and when the roots are quite dry the crowns may be parted. They will strike as cuttings if each crown is taken off with a portion of stem attached to it. It is best to pot them singly in thumb pots, using very light sandy soil. They must be placed in a forcing house in which a little artificial heat is used. The pots ought also to be plunged in a very gentle bottom heat, and be covered with a hand-glass.—J. D.

India-rubber Plants (p. 246).—They may be cut down at once if unsightly. Eyes will root in a strong heat, but cuttings with two joints, one in and the other out of the ground, are better. Place these in pure sand in a temperature of 70° or 80° in a Cucumber frame, and they will soon root and form good plants. The old plant will also break and grow into a useful plant all the sooner if it is placed in heat and grown on in a stove temperature afterwards, for though this plant will bear a cool temperature well, it is a real tropical plant and grows fastest in a temperature of from 60° to 70°.—D. T. FISH.

Begonia fuchsioides as a Pillar Plant.—I planted this Begonia against a pillar in an intermediate house, in the end of August last, out of a 5-in. pot; it has since made vigorous growth and flowered profusely, and has attained the height of 12 feet. Its pendulous form and graceful Fuchsia-like blossoms render it one of the best and most distinct of all the Begonias, and for furnishing pillars it cannot well be surpassed.—F. W. E., *Penrhos, Holyhead*.

SEASONABLE WORK.

Plant Houses.—With a good stock of hard-wooded plants, forced shrubs, and bulbs, there will now be a profusion of bloom in these structures; so much so, that it will be necessary to commence retarding late flowering plants of various kinds for keeping up a good supply when the glut is over, and to do this successfully, tardy development in cool houses facing the north or west is infinitely better than shading and starving when the flowers are expanded. Achimenes, Gloxinias, Caladiums, tuberous-rooted Begonias, and other popular plants usually grown in quantity in places which do not aspire to exhibiting should be potted and brought on in small successional batches, the number of such being regulated by the stock in hand and the space at command. For the decoration of the shelves and side tables in temperate houses, tricolor, bronze, and scented Geraniums are always welcome. Herbaceous Calceolarias, late Cinerarias, Pelargoniums, and Caladiums will now take liberal supplies of tepid liquid; they will also require frequent smoking to keep them free from green fly. Pot up autumn and spring-struck plants of Petunias, Fuchsias, and zonals. Avoid overpotting and keep close for a time. Put in more cuttings, shake out and repot old Fuchsias. Sow Balsams, Cockscombs, Celosias, and a pinch each of Primula and Cineraria. Cut back standard Heliotropes, also Erythras; water sparingly until they break, then reduce and repot in sound, rich, sandy loam. Follow up the potting of Ferns and Mosses; increase the most useful kinds for furnishing or cutting by splitting them up into small pieces; drain the pots well, and leave the late delicate growers until last. For the furnishing of temperate houses the hardy kinds are worthy of more extensive cultivation, as few, if any, of the tender varieties are more beautiful when the former are well grown under glass. W. COLEMAN.

Tussilago fragrans.—I should be very glad to know in what soil this flowers. I have had it here growing in heavy loam in a rather shaded part of the garden for the last twenty years, but have never seen a single flower.—H. BURNEY, *Wavendon Rectory, Woburn*.

TREES, SHRUBS, AND WOODLANDS.

PROPAGATION OF CONIFERS.

THE following brief notes may be of service to one of your correspondents, who wishes for information upon this subject. Conifers are increased either by means of seeds, cuttings, or grafting. The first-named method is that most generally resorted to, as seedlings are more free of growth than cutting plants; indeed, in the case of the Pinus, Abies, Picea, most of the Junipers, the normal form of Lawson's Cypress, and Cupresses of the macrocarpa type scarcely any other method of propagation is ever attempted, as, although the Pinus and Abies families admit of being increased by means of cuttings or by grafting, the plants thus obtained do not grow with freedom, and seldom make other than lop-sided, imperfect, ungraceful specimens. The same remarks apply with equal force to Wellingtonia gigantea, Cryptomeria japonica and elegans, and Taxodium sempervirens. The Thujas strike readily, but of many of them a good supply of seed comes to hand, which may be bought at a cheap rate; but the varieties, such as aurea, elegantissima, and semperaurea have to be increased by other means, the two former striking readily, the latter not so well, and it is generally grafted, as is also T. gigantea. The varieties of Lawson's Cypress strike very freely, as do the Retinosporas and their coloured varieties. Juniperus drupacea is worked upon the common Juniper, and the Retinosporas may, if so desired, be grafted on Thuja occidentalis.

Seedlings.—The best time to sow the seed is in March, when the pans may be placed in a cold frame. When sowing under glass is resorted to, except in the case of very common kinds, it is better to thus ensure to the seed that amount of protection during the germinating period. Well drain the pans or pots, and place a pinch of soot on the drainage to keep out worms. Water the soil well before sowing, cover the seed with about its own thickness of fine soil, press it down firmly, making an even surface, water gently, cover the surface with moss, and plunge the pots up to their rims in a cool shady frame. Keep the moss damp, and when the seedlings are coming through, remove it and expose gradually to the full light and air, throwing off the lights in fine weather, merely warding away heavy or continuous rains. The first season the young plants may be allowed to remain in the seed pans, and should be wintered in cold frames, taking care not to enervate them by close confinement, but giving plenty of air, only shutting up close in case of hard frosts. Plant out the following March in 4-ft. beds in well-stirred, free soil, watering when needful, and paying strict attention to cleanliness, not allowing weeds at any time to encroach upon them.

Cuttings.—Propagation by means of cuttings is effected in various ways, the most simple of which is to take off young shoots of the current season's growth early in September and insert them in a bed of free, light, sandy soil, in frames having a north aspect. Make the soil very firm around them, and just afford protection in very inclement weather, warding off heavy rains and closing the frames during hard frosts. The great points are to insert the cuttings early enough to get them well callused before the winter, and to prevent the sun's rays from striking on them in the spring while making roots. The Retinosporas strike readily in this way, as do the varieties of Cupressus Lawsoniana, but Thujas generally, and especially T. aurea, require a little bottom heat after they have callused. Insert some ten or a dozen cuttings in a 6-in. pot, keep them cool till the middle of October, and then plunge the pots to the rims in gentle warmth in an intermediate house, or in frames. By the end of the winter they will have taken root, and will be ready to plant out in April. When a stock of any kind is required small cuttings may be inserted anywhere during the winter in very sandy compost, surfacing the soil with silver sand to prevent damping, and placing the pots in close frames in a warm, light structure. Keep the soil in one uniform state of moisture, and remove the lights, or lift them every morning for an hour or two, so as to give a change of air.

Grafting.—There are two seasons in which the grafting of Conifers may be successfully carried out. Some prefer the late winter months, keeping the grafted plants in warmth until taken, but I have always considered the month of August to be the best time, as a plant worked at that time gets well established by the winter, may be wintered in a cold frame, and will be perfectly hardy and in readiness to plant out by the spring. Side grafting is generally

practised for Conifers, the stocks, which should be two years old and established in 2½-in. pots, not being headed down. Take a piece out of the side of the stem, cutting down towards the soil, finishing off with a cut directed towards the centre of the stem, thus forming a kind of ledge on which the scion, which has to be cut in the same manner, rests. Join the two barks as intimately as may be, bind firmly with wool, and place in a close frame in a cool, shaded house. The pots may be laid on their sides, but the soil must not be allowed to get dry, and the sashes must be lifted off every morning for a time. It is absolutely necessary to thus change the air every day, as when the plants are kept too close, although the union may to all appearance appear perfect, the stocks will, after being placed in the open air, cast their grafts. Do not head the stocks down until spring, and then cut down close to the scion.

J. C. B.

WOODLAND WORK FOR MARCH.

THE long suspension of planting operations which occurred in January and the early part of February still leaves heavy arrears in many places, and every favourable opportunity of pushing forward the work should now be seized. Careful getting up, a good puddling, or ample covering of the roots during the transit, and speedy planting should now be aimed at. The drying and often piercing east winds of March are frequently fatal to nursery stock which is not well protected during removal. The larger hardwoods should at once be finished up and smaller plants got into position as soon as possible. The thinning of hardwood plantations should be brought to a close early this month. Larch groves suffer very considerably from being operated on after the trees begin to break into bud, and mixed plantations of almost any kinds of trees are thrown back, and often permanently injured by heavy thinnings after long neglect.

Before the end of March all coppice produce should be felled, after which no time should be lost in clearing it from the stools. The plan of well brushing the clearance roads to protect the stub and facilitate the removal of the produce is one which cannot be too highly commended. Backing out the produce from the falls to the sides of the main roads is also a practice which should be more extensively adopted. Upon this subject William Cobbett, who was himself an ardent planter and a close observer of everything relating to the management of woodlands, says, "I have seen in the clearing of a coppice thickly set with young Oaks that had come up from the Acorn, more than a hundred of these trampled down by the horses, run over by the wheels, broken off, or torn in their bark during the loading and carrying off of one single load of worthless brushwood, of so little value as to be sold at five or six shillings the hundred bundles. Carters have no more mercy on young trees than they have on flint stones. If a wheel come in contact with a stool it half grubs it up, or at the very least it destroys half of its power of reproduction. Very careful people have the produce of their coppices backed out." In the nursery the digging of all vacant spaces should be proceeded with, and a good dressing of rotten manure should be applied to such as are intended for vegetable crops. Seedling hardwoods of all kinds should be transplanted as soon as possible. Where the ground is not ready, such kinds as Oak, Ash, and Beech may be lifted and laid in by the heel for a time until their permanent plots are prepared. The remaining cuttings of Elder, Poplar, and Willow should also be made and planted as soon as possible. A dry March is the nurseryman's opportunity for preparing land for seed beds and getting in a greater part of his tree seeds, but no attempt should be made to get upon the land while it is so wet as to adhere to the feet. If Acorns, Chestnuts, and Walnuts are drilled in tolerably wide rows, every facility will be given for undercutting the plants at times when the pressure of work will not admit of transplanting. The smaller seeds, however, are generally better sown in beds, as the young plants thus afford each other mutual protection. Cover but lightly such seeds as Holly, Yew, Alder, Hornbeam, Hawthorn, and Mountain Ash. This is best done by sifting some fine soil over them. The seeds of Maple, Sycamore, Elm, and Beech are best put in late in the present month or early in April, on account of their liability to be cut off by spring frosts. Grafting of Beech, Oak, Elm, Laburnum, and some other trees may be carried on. Hawthorn hedges may still be planted. To fill up vacant spaces among the underwoods, Acorns may now be dibbled in at depths of from 1½ in. to 2 in. At this season they will be less likely to be disturbed by birds and vermin than if put in at the beginning of winter.

A. J. BURROWS.

Pluckley, Kent.

Variegated *Andromeda japonica*.—M. Lavallée recently exhibited this at a meeting of the French National Society. Respecting the type, M. Lavallée says that it is extremely hardy, not even the

exceptionally severe weather of 1879-80 having injured it. It is an evergreen shrub, attaining a height of some 3 ft., and producing a quantity of bunches of white flowers which severe winters do not appear to harm, and which expand during January, February, or March according to the nature of the season. The variegated form comes direct from Japan.—J. C.

The Mezereon.—I observe that this is again loaded with blossoms. It is a favourite in cottage gardens in some parts, but not so frequently seen in large gardens and pleasure grounds as it ought to be. It forms a neat bush, and flowering, as it does, so freely in company with our early Snowdrops and Aconites, when every flower is valuable, it ought to have a prominent place in every garden. Sad havoc in the case of tender shrubs and trees has been wrought by the severe frosts; and if such visitations are to be annual occurrences, as they promise to be, it will be well to prepare for them by giving more prominence to really hardy trees and shrubs, so that in future visitations of this kind may not leave unsightly gaps, and few hardy shrubs are more worthy of notice than this *Daphne*.—J. GROOM.

THE LIBRARY.

NICE AND HER NEIGHBOURS.*

A NEW book by the author of "A Book about Roses" is sure to be welcome to all who love a garden; nor will expectation be disappointed when the humorous pages that so often in "Nice and her Neighbours" pass from "grave to gay," or *vice versa*, have been duly read and enjoyed. The theme is a pleasant one



Cactus in the South of France.

for Canon Hole, to tell us of the beauties of vegetation on the Riviera generally. Visiting for the first time those sunny shores, he is himself vividly impressed by the luxuriance of plants and flowers, whether wild or cultivated, that are to be found there; and by the aid of many excellent engravings which adorn the book (some of which we produce), he has given us a volume which will pleasantly recall familiar scenes to many, and charm even still more, who may be roused thereby to go and see for themselves such a gardening paradise. To a botanist no less than a gardener or an artist what visions of beauty and interest are called up by

* "Nice and her Neighbours;" by the Rev. Canon Hole. London: Sampson, Low & Co.

the very names of such gardens as Mons. Dognin's at Cannes, Baron Haussman's at Nice, Dr. Bennett's at Mentone, or Mr. Hanbury's at La Mortola!

There are also many, lesser only in size, not in interest, but it is not in the power of any ordinary traveller to see all these



Prickly Pear (*Opuntia*) in the South of France.

"Gardens of Eden" for himself, so it is a happy thought that those who choose to read Canon Hole's glowing descriptions will obtain at least a glimpse of this favoured coast for themselves. His praise of the wild gardens at the extreme end of the rock at Monaco is specially welcome, and may persuade some of the many thousands who flock to the common-place gardens at Monte Carlo, and then, in their ignorance, decry the beauties of which they have heard so much, and yet have not taken the trouble to see!

The suggestions and lessons that may be learnt from the Olive, Palm, Fig tree, and Vine are to all readers, as well as gardeners, of particular interest. It is only to be regretted that the author of a book so generally accepted as of infallible authority—"The Book about Roses"—should have told us so little about the culture of the Rose on the Riviera; surely he must have more to tell us than that gardeners there leave all to Nature, and do not discuss and dispute as we do the several merits of "*Banksian*" versus "*Rosa indica major*" stock; but perhaps he is reserving himself for a future occasion; if so, *Vogue la galere*!

Botany of California.*—We have to acknowledge the receipt of the second volume of this noble work and monument of the accuracy of the botanical knowledge and patience of its author, Mr. Sereno Watson. The volume is remarkable in two ways—as a fine example of the present state of the printing art in America, and also as an excellent account of the flora of a country. For some time past the perfection to which the printing art has been

brought in America is a source of pleasure to those who admire good work in that way, but after all the interest of the book to the horticulturist and botanist is its containing, as far as may be with our present knowledge, a full account of the flora of one of the most interesting countries in the world. That country is doubly interesting to us from containing a great number of beautiful hardy plants, many of which now adorn our gardens and of which we shall see more and more as time goes on; for example, the fine Californian Lilies, of almost recent introduction, yet few things have so far tended as adornments to our gardens. The Conifers, too, are well described and classified, and to these we may advert hereafter.

—We have received "Notes of Observations of Injurious Insects" from Miss Ormerod. These annual and most instructive notes have now been published for several years; every year they have increased in number and value; those made during the past twelve months form quite a thick pamphlet, which contains reports from various parts of this country on the habits, and in most cases of the means used for destroying thirty-seven insects of various Orders. The value of these notes can scarcely be over estimated when we consider what an enormous amount of produce is annually lost to the country through the agency of insects, and it is only in this way by collecting together the experiences of many cultivators that we can hope successfully to cope with our insect enemies. The injurious insects which appear to have been unusually abundant last year, were the leather jackets (grubs of the daddy-longlegs) and the grubs of the Carrot and Onion flies. The gamma or silvery moth, which was so particularly common in 1879, was but little noticed. Miss Ormerod in one of her concluding remarks very truly says, "Looking at the results of last year's observations, it will be seen that they point to the importance of such treatment of the evil as may press on a hearty healthy growth, and to counteracting direct insect attack by special methods of cultivation, based on knowledge of the insects' habits rather than on applications to the insects themselves." This, no doubt, applies more to farming and kitchen garden crops than to plants in flower gardens and greenhouses; still, it should always be remembered that in almost every case it is the weakly and badly grown plants that suffer most from the attacks of insects. We commend these notes most heartily to the attention of our readers.

The Tomato, by W. Iggulden, Marston House, Frome, is a thoroughly practical and useful treatise of seventy-three pages on this now popular fruit. It teaches people not only how to grow good Tomatoes, but, what is equally important, how to cook them. It also contains a list of varieties and an estimate of their relative values.

AN ERRONEOUS VIEW OF PRACTICAL MEN.

IN an article on the subject of agricultural stations in the last number of *Scribner's Monthly* we read as follows (p. 629): "*The practical man is seldom or never an observer (!). He has eyes and thinks he sees, and yet may not know the first thing in the art of seeing. He may be able to make comparisons of known facts, and can perhaps draw admirable conclusions (though ten to one he cannot), but what avail is it if not one can be sure of his facts?*" This writer may be wise in some respects, but he here says some of the shallowest things that have been uttered. Is he sure of his facts in the remarkable statement opened by the above quotation. Can it be possible that this wide world of ours has been reclaimed from the wilderness and made to smile with farms and gardens which feed the world without its practical men being observers? Why, it is only a few years since the world has become rich enough and organised enough, so to say, to establish the men whose special business it is to observe and who are paid to do it. Small thanks to them if, delivered from all routine, and with all their powers for making observations, they should surpass those who have to work as well as think. But is it certain that with all their advantages they do so? We are by no means sure of it. Which of us, who has seen in various countries the so-called "Schools of Farming and Gardening" under such direction as the above writer would approve of, has not noticed how poor they often are from every point of view? We have ourselves seen the so-called scientific farms and gardens which were wretched compared with many private places having no pretension in the same neighbourhood. We do not say that such is necessarily the case, but when one reads such thoughtless impertinence as the above one does look to actual facts and more closely than suits this writer. It is only the small fry of self-styled scientific men who speak in this shallow and impertinent manner. If one reads some of the philosophical writers one finds the true reason of the matter laid down. They say that there is no real distinction in kind between the most careful observations of the scientific man and those of the peasant who watches the seasons

* "Botany of California" (vol. 2). By Sereno Watson, Cambridge, Mass.: John Wilson & Son, University Press. 1880.

and wisely guides his operations accordingly. But the prevalence of the idea of another school, as illustrated in the above quotation, has unfortunately done much harm to progress, and is likely to do more.

THE KITCHEN GARDEN.

VEGETABLE CROPPING.

As yet the nights are cold, consequently the soil does not dry much during that period, but the sun is gaining strength, and often shines warmly after a cold damp night, and these rays are worth a great deal to the hardly-pressed kitchen gardener. At such times all ground ready for cropping should have the Dutch hoe run through it in the forenoon, and if this operation can be repeated two or three times in rapid succession, it is surprising how soon the wettest and most sodden ground will become dry and mellow on the surface. This is the great secret of successful seed sowing. Crops put into the ground when it is in good condition show the benefit of it all season, and this is most particularly the case with small seeds; but it also applies more or less to seeds of all sizes. As we attach so much importance to having the ground in good working order at seed sowing time, it may be understood that we do not wait for dates. "Sow Onions the first week in March," say the calendars. I say, sow them the first week in February if circumstances are favourable, and do not trust to March. This I find none too early for many things if they are only put into suitable soil. Seeds put in when the soil is dry and sweet are rarely injured by subsequent bad weather, but when sown in cold wet soil, additional cold or wet increases their liability to fail. Before beginning to sow any kind of seed on any kind of soil it is a great advantage to have a quantity of dry free open soil ready for covering the seeds with. We keep this in mind all the year round and save all old potting soil, leaf mould, very much decayed manure, ashes from burned refuse, and everything of the kind dry and ready for use at any or all times. When seeds are sown broadcast, about $\frac{3}{4}$ in. of this mixture is spread over them, and seeds sown in drills have the same application, even Beans, Peas, and Potatoes.

Parsnips are amongst the first seeds to be sown. They have been put in by us in January, February, March, and April, and all did well, but for large early roots they must be in before the last named month. If fine roots are wanted they must have deep soil, and not be stinted for room; 15 in. between the rows and 10 in. between the plants is none too much space. To sow the seed thickly in the rows and then thin out to this distance is a waste of seed and plants. A better way is to put two or three seeds down every 10 in. and none between. They will then come up in little tufts, and can be singled out, which is better than having them coming up in a close line all along the row. Few or no insects seem to injure Parsnips, and no allowance need be made for destruction in this way, but there is often a brown rust comes on the roots in autumn which I do not like. I know of nothing that will prevent this, and if any of your readers do, I am sure the information would be acceptable to many.

Onions are the next large crop which requires attention. Indeed, in many ways they are far more important than Parsnips, as many grow the former and not the latter. Size is generally the first thing aimed at, and this can only be attained by exercising care at seed time. Poor land will never produce good Onions, and shady corners will never mature fine bulbs; but plenty of manure and a sunny aspect will always produce a heavy crop. The best way to grow Onions is in drills; these may be from 6 in. to 1 ft. apart, according to the requirements of the grower. We sow at both of these distances and between, and fair bulbs may be had from all. Manure for Onions should not be far from the surface; the seed should not be sown deep; 2 in. will be found to be enough. When the drills are drawn out to this depth, if they can be filled up all the way after the seed is sown with the soil before recommended, the young seedlings will have a better chance than they otherwise would have. Onions at all stages of their growth are liable to be destroyed by grubs. Many fine promising plantations are annually lost in this way, but this need not happen if a good sprinkling of salt is dug into the soil with the manure, and a quantity of soot mixed with the soil which goes over the seed. Salt and soot are two good Onion manures. We applied them liberally to some last year, and had Onions 20 oz. in weight in five months.

Early Carrots is another important crop; they, too, often suffer from insects, and the same precautions should be taken as in the case of Onions. The earliest Carrots should always have the warmest corner in the garden; a light soil suits them best. Newly manured ground is not good. That which was well manured and deeply dug the previous year grows them well.

Turnips should not be sown before the middle of March, as they run to seed so much in spring. Seed and labour are thrown away in the case of Turnip culture on a poor soil. Small quantities put into good soil often is the best way of keeping up a constant supply of sweet roots.

Peas are sure to give satisfaction, or otherwise just in proportion to the attention devoted to them. Early Peas are a much valued delicacy. Like most other vegetable crops, excessive quantity and high quality can only be had under a liberal system of culture. Well prepared soil and plenty of manure never fail to furnish what is most desired. Early rows should have favoured positions. Neither the plants nor rows should be over close together; wide shallow rows are those which we prefer. A constant succession can only be kept up by frequent sowings. Although we do not follow out any rule of rotation in cropping, we never like to follow with rows of Peas on the spot where they had been the previous year.

Potatoes.—Sometimes the rows for these are drawn cut with a hoe, and sometimes they are thrown out with a spade, planting as the digging goes on, or dibbled in if the ground has been previously well prepared. By all these ways of planting good crops may be secured. We always avoid deep planting of the tubers; 3 in. below the surface is a suitable depth. Early and late sorts are all planted at the same depth. Potatoes never do well in wet stiff soil, and patches of this description should be reserved for other crops.

The Cabbage Tribe.—Although we have tried the often recommended plan of sowing the seed of Brussels Sprouts, Cauliflowers, Cabbages, and the like on the spots where the plants are to grow, I can see no advantage in the system compared with the old way of sowing the seeds in beds and transplanting as soon as the plants become large enough to handle. For this reason I advise all seeds of the Cabbage tribe to be sown broadcast in little beds. They may be sown over a finely broken surface, afterwards raking it over and finally beating the surface lightly with the back of the spade. The spot where the earliest seeds are sown should be well sheltered and warm. In April and May this is not of so much importance.

Various Crops.—Radishes, Lettuces, Endive, &c., may all be raised in this way. Beans, Broad and Kidney, should be sown in rows 2 in. below the surface; good soil should cover the seed, especially of the early sowings. Beetroot should always be sown in rows in deep soil, and never before the middle of April. Salsafy makes a good neighbouring crop to the Beet, but should not be sown for a month after it, as it is very liable to "bolt" in autumn. Celery is much better sown on a gentle hotbed than in the cold ground, but frequently as many plants as are wanted can be had from seed sown in a pot or box, and in such cases this plan may be followed. Of Asparagus, we raise some hundreds from seed every year to keep up a supply of roots for forcing; the end of March is early enough to sow the seed of this; it should be sown in drills 1 ft. apart and 2 in. deep; the seed germinates freely, and the plants grow well for the first year, when they should be transferred to their bearing quarters. In all cases of seed sowing the soil should be made firm over the seed. After sowing we always tread it in with the feet, beat it with the rake or spade, or run a roller over the surface. When the soil is dry I prefer the latter plan, and immediately after sowing the hand roller is run over all our quarters of Onions, Carrots, Parsnips, Turnips, &c. After this the young seedlings come very freely through the soil, and insects do not appear to have so much harbour as when the soil is left rough.

Margam Park, Taibach, S. Wales.

J. MUIR.

SAWDUST AS A MANURE.

It seems to me that some who have written about this matter appear to lose sight of the fact that in the way in which it exists when used merits are assigned to it which are due only to the manurial elements which it holds in suspense—in fact, that the casket is mistaken for the jewel. Most assuredly sawdust contains no manurial elements beyond those existent in the most indifferent forms of vegetable matter—nothing like those contained in leaves, or the balm of such plants as produce top growths that do not naturally endure long. No; sawdust alone, when fresh, is absolutely injurious to the growth of some plants, if not all. This I ascertained some years ago by submitting several kinds of culinary vegetables to a trial with sawdust applied immediately to the soil in which their roots were placed. The question then, as now, had been raised as to its properties, and having plenty of it at hand, I thought it well to give it a trial. I had some from resinous timber alone, and some that was a mixture of hardwood—Oak, Elm, and Ash; I used it for Potatoes, Cabbages, Carrots, Turnips, Peas, and Broad Beans, keeping the resinous and the hardwood dust separate. I had trenches opened in the ordinary way, putting in about half as much in bulk as that generally applied in

the shape of farmyard manure, and in each case had it well mixed by forking it in with a portion of the soil in the bottom of the trench. The Potatoes and Cabbages were at once planted in it in the ordinary way, the seeds of the other things sown as usual, and a portion of the adjoining ground occupied with similar crops without manure of any kind. All through the season, in each stage of growth, the sawdusted crops were much weaker in their tops, and the produce little more than half that borne by the same kinds without any application; the Potatoes were the worst of all, being not more than a third the size which they should have been, their skins being as clean and transparent as if they had been washed and oiled. The Cabbages were the next worst, having that purplish-blue colour that is indicative of poor soil in an over-dry season; the Turnips and Carrots were small and tough in texture; the Peas and Beans showed less signs of dislike to its presence, but were much inferior to those on ground where it was absent.

Dust from the resinous wood seemed to be worse in its effects than that from the hard wood. I have frequently since used sawdust after it had lain out-of-doors in a heap for four or five years, and had become black and partially decomposed for digging into heavy land with a view to lighten it, and in this way it answered to some extent, but I would much rather have clean sand or finely sifted ashes, as the mechanical effects of these are much more enduring. I have often used manure where sawdust and deal shavings had been used in place of straw for bedding, and also where turners' shavings, *i.e.*, the fine chips or shavings from the bobbin turners, were similarly employed for litter, and in all cases the manurial elements seemed to have the effect of neutralising the injurious properties present in the sawdust and shavings, in addition to which it appeared to have a like effect in counteracting the disposition which there is in woody matter, where introduced to soil that is naturally light, to produce fungoid growth. The turners' shavings that I have named, unlike such as are made by joiners, are taken off across the grain of the wood, not lengthways, and break up into bits about $\frac{1}{2}$ in. or 1 in. broad. When this material has been liberally used for litter, so as to have with it a fair quantity of stable droppings and urine, it forms the best mulching I have ever tried. Shavings of this kind are not obtainable everywhere, but "Brockhurst," who speaks of using sawdust manure for mulching, will have no difficulty in getting plenty of them in Manchester, and I feel sure that if he once tries this material he will soon discover its superiority over the sawdust matter for choice herbaceous plants and things of like character. It does not hold water like sawdust, or blow about and look untidy like leaves or straw, and its effects are all that can be desired.

T. BAINES.

Good and Bad Brussels Sprouts.—All whose efforts are directed to the production of first-rate Brussels Sprouts are not invariably successful in obtaining stems, say, 2½ ft. high, straight, and set with hard, rather broad Sprouts, packed closely together from base to top. Often, after the best efforts, only some 50 per cent. of the Sprouts will be solid; the rest will be loose and open, and not worth the name of sprouts. Now, at the outset the first consideration is a good strain; for just as there are bad strains of Cabbages, or Broccoli, or any other vegetable, there are also bad strains of Brussels Sprouts, and no kind of cultivation will make them good. I have tried all the newer varieties, but have found nothing to supersede the old imported Sprouts. The so-called new varieties are just selections which at first have some distinct points, but ultimately relapse to the old form unless under very rigid and careful selection. The reason why I call attention to the subject now is because I believe the date is at hand when the first sowing should be made. If the weather is not favourable for outdoor sowing early in February, the first and main sowing should be made in a frame. I have often done so on a narrow border in front of a south wall, and protected the seed bed with spare lights. I do not mean to say that good Sprouts may not be grown from seed sown in March or even in April. Indeed, ours of this winter were not sown until Easter Monday. They were sown at the foot of a south wall, and have turned out fairly good; but early sowing is best, and in the northern parts of the kingdom especially it should be done in the first or second weeks of February. If sown in a frame the young plants must not be coddled, but have attention as to air and thinning, and as soon as fit they should be transplanted into another frame or warm border some 3 in. apart, and grown on until they are strong enough to take their chance in the open quarters of the garden. I need not say that a heavy soil, well manured and deeply cultivated, is the best for Brussels Sprouts, as it is for all the Cabbage tribe; and care should be taken that this crop does not follow Broccoli or Cabbages. One of the most essential points to consider in the culture of Brussels Sprouts is that of space; if sown and grown as directed they will be ready for planting when

some will only be thinking of sowing. 3 ft. apart every way will not be too much. Grown as described we have had quarters of Sprouts averaging 3 ft. all over, and the stem packed with hard, well-formed sprouts. The Rosebery Sprout, when first sent out, was a dwarfer, sturdier plant than the imported Sprout, with larger, flatter heads; but it soon began to come unequal in habit, and a pure Rosebery is, I apprehend, now difficult to find. In autumn, when the lower leaves on the stems begin to decay, it is well to go over the whole and strip off all that show change of colour, clearing the whole away, and thus permitting a freer circulation of air, dryness being necessary to the good keeping of the Sprouts; damp, decaying, or rotten foliage is sure to injure them. The tuft of leaves on the top of the stems should be retained, as they keep off rains, and we have been so far careful of fine plants of Sprouts as to stake them up, as one would a flowering plant, in order that the top leaves might keep the Sprouts dry; this may be considered by some overdoing the business, but I only say what we have done, and do not ask anyone else to do likewise.—HIBERNIAN.

THE MARKET GARDEN.

Hardy Plants.—Since I sent you some previous notes under this heading we have had a taste of genuine winter weather, and naturally the usual trade in market hardy plants was suspended for a time. What those who eke out an existence by their sale did to obtain a livelihood during that period it is difficult to imagine, but it will perhaps be some consolation to them to find that the sudden change, from iron-bound frost to open weather, will set all classes longing for early flowers, and beget an anxious desire to get into the garden. The observation made the other day, that early spring flowers burst into bloom with greater unanimity after a hard winter than after a mild one, is doubtless true. It is the result of reaction, and will help to give confidence to purchasers, because they will also believe that the spring is come in good earnest, and will be a long one.

Pansies.—The hawker and the suburban purchaser alike have a fondness for those with big blooms and bright colours. A plant having two or three blooms about the size of the palm of one's hand, will sell much more rapidly than one having a score of flowers of moderate dimensions; bright colours are also in high favour, especially blues and yellows; the finest strain of market Pansies I have seen is that grown near Isleworth, and the owner is very chary indeed in permitting seed of his best plants to get abroad. It is neither an English nor a fancy strain; there is not much of the defined belting of the English kind, or the fine blotches of the Belgian section, but a modification of both; the blooms are large, of good substance, richly coloured, and the plants robust in habit; a compact growing kind that flowers early, if the blooms are large and showy, proves an acceptable seed parent. All Pansies will bloom freely enough in their season, but those that will exhibit precocious features are the more valuable, inasmuch as they permit the trading season to be so much extended; the usual price of good plants of a fine strain is from 6d. to 9d. per dozen, but in the market a higher figure is obtained. Of self-coloured or bedding kinds, for which there is sometimes a good demand, Blue Beard and Blue King Pansies and Blue Bell Viola are highly favoured, and of yellows, the Cliveden Yellow is largely grown; the old Magpie, because of its quaint markings, is often asked for, but it is rarely grown in quantity. All the bedding kinds are pulled to pieces, and freshly dibbled out into good ground during August, and they make robust plants for sale in the spring. Plants from seed are raised during May and June from seed sown in the open ground; many of these flower in the early winter, and are useful to the hawker ere other things have bloomed.

Daisies.—Any attempts to push into prominence other Daisies than the common double red and white seem to have failed in the market trade, except so far as the large crown flowered or Victoria kind is concerned, but that has no merit whatever beyond the size of its flowers. For size of bloom and hardness the two common kinds above named are without doubt the best. The nursery florist may grow other kinds for the gratification of amateur plantmen, but the market grower will have none of them. I have often endeavoured to introduce the variegated leaved kind, but in vain, it does not stand the rough and ready treatment to which market plants have to be subjected, and not least has a confirmed tendency to run back to the original form. Few plants seem to get sick of one particular piece of ground so quickly as the Daisy, but the best plants I have seen anywhere grow in thin gravelly soil, and especially through the winter do remarkably well. Close soils run together on the surface and retain the moisture about the plants, then follows rot, and the plants die rapidly. The complaint that the

plants get sick of the ground is due doubtless more to this than to any other cause. The real reason is that the ground is unsuitable for them. Market stocks of Daisies are usually lifted twice in the year—as soon as the sale is over in May, and again for division for the winter, early in October. These are bought freely at 6s. per gross, at which price they prove very profitable.

Forget-me-nots.—The *Myosotis*, or Forget-me-not, makes an excellent market plant, but the old blue *sylvatica* is the one most commonly grown. It is hardy, easy of propagation, and grows into neat compact bunches. *Myosotis dissitiflora* would be in great favour with the hawker if it could be had in quantity, but that is just one of the things that seems to baffle the grower. We know that it does best from seed. And it does not seed freely; indeed, where thousands of plants are wanted, it is oftentimes not easy to get seed enough to raise them. The springs have much to do with this, but a run of a more favourable kind may perhaps presently enable the seed grower to get seed in quantity. With any good thing a few is of no use. If a demand is once created, it is most annoying if the supply cannot be maintained. Some few years since a variety named *Myosotis semperflorens* was sent out, and market growers hoped to find in this a good early kind. In the end it proved to be nearly allied to the wild *palustris*, and to be but a summer bloomer, though of good robust habit. The Forget-me-nots sell at about 7s. per gross.

Wallflowers.—These are bulky plants for hawking, but still sell well. Most persons love the Wallflower, and all know what they are buying when they purchase them. It is not the first planted, strongest ones that are sold to the hawkers; these rather are kept for cutting from. The smaller plants from the seed bed, dibbled out later moderately close together and in an open place, where they will grow dwarf and compact, prove best for sale; but owing to the loose nature of the roots it is difficult to get them with balls of soil, and yet without some such stay they soon give out. The plants must be carefully lifted and be rubbed down as small as possible, and well fixed between the hands, then put thickly into shallow boxes and not again moved until sold to the customer. With care the balls of soil may be retained and the plants will suffer little for the removal. No other Wallflower is grown in the Metropolitan district but the rich dark red kind. No doubt, were the bright yellow kinds grown and offered for sale they would find plenty of purchasers. Perhaps one reason why the yellow kinds are not grown is found in the fear that they might corrupt the dark ones, and this undoubtedly would largely follow. I have always found that it is necessary to grow them very remote from each other to ensure purity, and further, that the yellow shows the intercrossing first. The dark red hue is so fine, and the strain so good, that it would be a misfortune were it to be contaminated. The growers here sow seed as a rule very early in the year, taking advantage of open weather, even so early as January if any offers. But this year none has been sown yet. On the earliest opportunity it will be widely sown, for upon that early sowing chiefly depends early blooming. Wallflowers sell at 7s. per gross, a very common price for many market plants. A. D.

The Land Question.—There is a very able and clear article by the Marquis of Blandford, in the "Nineteenth Century" for this month, on the breaking up of the land monopoly. Although political matters are out of our theme, still the development of the land in all its beauty and fertility is not so. The England of the future must be something very different from the England of the past as regards the utility and produce of things which we now obtain from other countries. The whole of our small farming, fruit culture, and market gardening will have to undergo a healthy change if the present evils complained of are to be attacked and finally overcome. Speaking of education, the Marquis touches on a subject that has frequently occupied our own thoughts. He says, "There is still a rage to teach children everything or anything but their own language or the principles of their future occupation. The village boy is still taught the history of the Norman kings and the latitude of the Cape of Good Hope, while he is never helped to think for himself by studying Nature at first hand. Practical lessons in gardening or agriculture, readings, or easy discourses on English literature would give the lad a chance hereafter. His future occupations in life would not be entirely divorced as they are at present, from his early training, and he would not after a few years at plough have forgotten his early training, and he would not after a few years at the plough have forgotten the greater part of what was once dinned into him. Let anybody who cares for the subject study the method of boys' and girls' education in the Swiss Primary Schools, and let any one who has travelled attentively through Switzerland, and conversed with her people, compare the condition of the English agricultural class with that of Switzerland. Let him look at the same time at the

generally diffused knowledge of agriculture, the intelligence and independence of the people, and then let him come back and maintain, if he can, that our agricultural communities are not a standing disgrace to the richest country in Europe."

THE FRUIT GARDEN.

FRUIT CULTURE FOR PROFIT.

The Pear.

The natural habit of the Pear is free and vigorous, and when left to itself the tree usually assumes a conical outline. As a rule, a tree that sends its main branches up almost vertically pushes its roots deeply into the earth in order to obtain the necessary stay or anchorage. Thus in the case of standard trees, where considerable freedom of growth is permitted, depth of soil with a



Old Olive tree ("Nice and her Neighbours").

well-drained bottom becomes a necessity. It is a matter of less importance what the sub-soil is composed of if it be but dry and has a good depth of fairly good soil above it. Doubtless there are soils, such as stubborn retentive clays impregnated with iron or some other deleterious substance, where the Pear will not long thrive, but no one would think of planting a Pear orchard in such situations; and as regards the few trees required in garden culture, there are ways and means, which will in due time be noticed, of keeping the roots from penetrating an unsuitable sub-soil. Good Pears, both in size and quality, have been produced over a sub-soil of sheer red sand many feet in thickness, and I have gathered fruit, excellent in every respect, where the bottom was a deep bed of blue gault. It is also true of every conceivable variation between the two, but the site must be well drained, and there must be 2 ft. of good soil for the trees to grow in. In Pear culture, more so, perhaps, than with any other kind of fruit, the thing that really annoys one most is the way in which the quality varies in different soils and aspects, and in garden culture the latter circumstance very much influences quality, so much so, indeed, that it is most important the peculiarities of each kind in this respect should be known so that their wants, so far as is possible, can be provided for, as a variety of Pear that is hard and gritty in one aspect may be

melting and juicy in another, and *vice versa*. Though the array of names in the catalogues is of formidable length, the varieties that can be recommended for general planting are not so numerous as might be supposed. Some of the comparatively new kinds that are at present but little known to the general cultivator will probably come out well on a closer acquaintance, but time is required for testing them thoroughly under varying conditions. The Pear is one of the most useful and profitable of hardy fruits, and its culture undertaken in a liberal and thorough spirit is sure to be very interesting. There is no open-air fruit that is capable of doing so much for a first-class dessert for so many months in the year; as a rule, Apples are not much cared for at dessert, but good Pears are always eagerly sought after. There are many modes of

Training, all of which are more or less useful under the varying conditions of cultivation. Whatever may be said to the contrary, the mere contemplation of a well-trained tree gives pleasure to a well-ordered mind. Exactitude of training, if it be necessary to train at all, should be insisted on as a careless, slovenly system, very often leads to the tree losing its balance and becoming disorganised. Those people who complain about training as being useless have probably some such specimen in their mind's eye at the time, and are measuring all by the same standard. It was the exigencies of the cultivator's circumstances, the uncertainty of the climate, the ever-varying conditions he had to contend with that first suggested the restriction of the branches and training them in various forms in order to obtain earlier, better, and more certain results, and a reasonable amount of success has everywhere been obtained; and, as a rule, the more thoroughly the work has been done, the better the result. It is well to have large-headed standard trees, each producing bushels of fruit. It is well also to have walls furnished with wide-spreading trees where such a system succeeds and gives satisfaction. But room should be found for the fertile espalier and the handsome pyramid, not forgetting either, if occasion offers, the palmette or the cordon. I do not claim to have the gift of prophecy, but in looking into the future I fancy I can see the walls covered with a much larger number of trees of less spreading proportions, but which are more easily kept under control. I should like to see every bit of wall-space covered everywhere with fruit trees where there was the least chance of their thriving. The coming generation will not wait years for a tree to make a large breadth of wood before it begins to bear. It is not often that a large old tree pays the rent for the wall-space it occupies; usually the roots have got beyond the control of the cultivator, and the thing is submitted to because to re-graft or cut down and cart away would leave a blank on the wall for a time. In the future speedier results will be required, and no doubt will be obtained. For open-orchard planting, standards on 6-ft. stems are doubtless the most suitable, and in favourable situations many of our best old-established varieties will succeed fairly well. Many years ago I remember in Worcester an old standard tree of Marie Louise that bore immense crops. Knight's Monarch, again, does well as a standard, as does also Williams' Bon Chrétien. In the preparation of the site before planting, the directions given in the case of the Apple will apply with equal force for Pears. Except the roots are well cared for the trees cannot long continue in a flourishing condition, and no skill in top management can compensate for lack of preparation of the ground before planting. A young tree should never be planted where an old one has previously stood. Always select a new site for an orchard of young trees. In the case of wall trees or trees in walled-ingardens generally this cannot always be done, but the soil can be wheeled out to another part of the garden and fresh brought back in its place, and although the labour will be considerable, yet all who aim at obtaining the best possible results will not grudge it. In fruit culture if things are done grudgingly, especially in the matter of placing fresh soil round the roots, the result is too often far from satisfactory.

The Espalier.—There is no fruit tree that submits so readily to training and that seems to flourish so well under restriction as the Pear. When the branches are young, they possess great flexibility, and will readily assume any possible form. That Pear trees with growth curbed and checked are fertile and profitable is well known, for such trees are common everywhere; they are, in fact, a necessity in shallow soils and must be accepted as such, as although Pears like a deep soil, and must have it if a large top development is sought, yet shallow soils can be turned to good ac-

count by using the Quince as a stock, and by the adoption of a system of training that will equalise or distribute the growing force of the tree in a proper ratio over its whole surface. This, in fact, should be the aim of all training, and any method that does not accomplish this falls short of what is required. The horizontal form of training is a very suitable form for Pears if the lower branches of the tree get a good start of those higher up, as without this is done the bottom branches generally remain weakly, and are, in short, robbed of their proper share of nourishment. The sap meets with less friction in its upward course towards the top branches, and they consequently get the major part of the supply, unless the lower branches are first given such a start as enables them to maintain a lead. This is generally accomplished by heading back the trees the first year, if maidens, to the bottom wire, and taking a young shoot right and left of the stem to fill it. At the second winter's pruning cut to the second wire, and the following spring take out two shoots to clothe that also. Maidens are not always the most suitable trees to plant, two-year-old trees for various reasons often doing better; and, besides, when espaliers are well constructed no time should be lost in furnishing them, and so enable a return to be made. It often happens when a tree only one year worked is lifted its growing force seems too much checked. All maidens are not alike, but in some cases another year without lifting would make into good trees what turns out stunted failures. This proves what I suppose no one will deny, that much discrimination is necessary. In some cases maidens answer well; in others it is better to plant older trees. In the construction of espaliers no one now-a-days should use stakes or wooden fencing of any kind; they are constantly giving trouble; better by far to have the work substantially done; and if the expense cannot be afforded, train the trees in some form for which no trellis is required. But I will assume that

Iron Espaliers are used, and they should not be too low; in small gardens they should be 5 ft. high, and in large ones they might be 7 ft. or 8 ft. high. The bottom wire should be 1 ft. from the ground, as any fruit that touches the earth will be deficient in flavour and appearance. For tall espaliers on good ground the trees should be worked on the Pear stock, and the free-growing kinds should be from 18 ft. to 20 ft. apart. Many trees, no doubt, will cover more space, but large old trees after the lapse of years only produce fruit at the extremities of the branches, and smaller trees, with the roots kept near the surface and the branches in a regular state of fertility, are generally more profitable. If we give a tree a large space to cover, we must give it a correspondingly wide and deep root-run, and in so doing we lose touch of it, so to speak, and too often it runs riot, gets beyond control, and suffers accordingly. After the first three years when the trees have become strong and the bottom branches have obtained a good lead, the main central stem may be encouraged to produce two pairs of side branches annually until the trellis is furnished. The best way of doing this is to head down the main central stem to the required point about midsummer, and select the best placed shoots for the second pair from those that break. Except the main central stem, no other leading shoot should be headed back till the trellis is covered. The espalier wires should be about 10 in. apart; less does not give room enough for the production of good foliage, and more is unnecessary. The best material for tying in the young shoots is matting or raffia. The oldest branches may be supported with small twigs of the Golden Willow, which are very strong and cost nothing, as they will grow anywhere. Always in tying branches of fruit trees leave space enough inside the ligature for the branch to swell. Young hands are somewhat careless about this. Whenever a doubt exists about the suitability of the subsoil the bottom of the hole should be made impervious to the roots. Open the holes about 3 ft. square and 3 ft. deep, if the soil will admit of it, but it will be better to have a shallower hole and feed the roots near the surface with rich mulchings than permit the roots to descend to a stratum that will throw them and the tree they support out of gear. The bottom of the hole should be made level, and either be paved with tiles, bricks, or stones laid in good mortar, or about 4 in. in thickness of concrete should be placed in the bottom. In either case the foundation must have a few hours to dry and set before anything is placed on it. The trees should be carefully selected with clean healthy stems, and if on the Quince stock should be planted deep enough to cover the junction, as sometimes the stock and scion swell unequally, but when the

former is wholly buried roots will generally be emitted all up the stock in course of time, and the trees on them are consequently longer lived, and in some soils this is an important consideration. There should not be even a moment's unnecessary exposure of the roots when planting, and every wounded or lacerated root should be carefully trimmed with a sharp knife. All trees for the whole season's planting should be purchased and brought home in November, have their roots carefully trimmed, and be laid in carefully by the heels in some dry piece of land. This course gives the purchaser the pick of the trees at the nursery. And even if the trees are not finally planted for a month or six weeks after, the work of healing and callusing is going on, and they will start all the better for the early lifting. If planting must needs be deferred till after Christmas, the trees might be obtained and prepared in the autumn all the same, and I should expect such trees to do nearly as well as if planted in autumn. I have proved this, and I think it is worth bearing in mind, as sometimes the planting cannot be done as soon as wished.

E. HOBDAV.

GRAFTING OLD APPLE TREES.

WHAT is the best remedy for unfruitful Apple trees is a question frequently asked by readers of *THE GARDEN*, and as a rule the remedy suggested is root-pruning. In this neighbourhood, however, where hundreds of acres of Apple orchards may be seen, the only system likely to supply our markets with fruit in quantity sufficient to be remunerative to the grower, and at a price within the reach of the majority of consumers, is unrestricted growth of root and branch, or rather just sufficient pruning to keep the leading shoots from running up weakly or straggling, and the head open in the centre. If under this system they do not bear a crop sufficiently remunerative, the invariable custom is to head them down at the winter pruning, and re-graft as soon as the sap is sufficiently in motion. The scions are also taken off in winter, tied in bundles, and laid in by the heels in a cool shaded position, where they will retain their freshness and plumpness; for if they get at all shrivelled or shrunken, using them as grafts is labour in vain. In heading down the trees no large branches are severed, for they never heal over like smaller ones, but even in the very largest trees those having stems fit for good large timber the outer branches are sawn off back to where they are about the size of a man's wrist, and all small spray-like shoots and spurs below the cuts are left intact to provide leaf-action to keep the roots healthy until the grafts get well established, when they are all cut clean off.

Heading Down.—Now is the time for heading down the trees; it may be done in frosty or snowy weather, when other work is at a standstill; if the stem is covered with Moss or infested with insect pests, it will be greatly benefited by a coating of lime-wash or some insecticide, after which it may remain until the season for grafting comes round, which is usually in April. Crown or rind grafting is that usually practised; the ends of the stocks that were roughly cut off in winter should be neatly sawn off afresh a little lower down with a very sharp, fine-toothed saw, and one or two grafts inserted on each branch. A large tree will take from fifty to a hundred grafts. Some employ grafting-wax for keeping out the air, but nothing I have yet tried surpasses the old-fashioned mixture of clayey loam and cow manure, well worked up and bound on with matting. If stock and scions were in good condition, and the grafting carefully performed, almost every scion will grow, and, to prevent any damage from wind, the young growth should be carefully secured to stakes, fastened on to the main limbs of the tree. If any of the grafts appear to be monopolising the growth too much they may with advantage be stopped in July or August, and will probably develop two or three side-shoots before the end of the season, thus laying the foundation of a good bearing tree. If the scions have taken well they will by autumn afford leaf-growth enough collectively to promote vigorous root-action, and the useless spray on the stem may be reduced by degrees, and at the following winter pruning cut clean away.

Best Market Apples.—In this locality long rows of trees may be seen every season headed down for grafting; in fact, many of the robust-growing sorts like the Goff Apple are planted specially for forming a stock for Stone's Apple, as a large tree is got up in this way more quickly than if planted, for the prolific bearing habit of this variety precludes the possibility of its making much wood growth, but when grafted in the manner above described, a good tree capable of bearing three or four bushels of fruit the third year after grafting is by no means a rare occurrence; for, bad as the seasons have been lately, these rows of grafted trees have been quite pictures of fertility, and the best argument that could be adduced in favour of the prac-

tice of grafting. In addition to Stone's, the most popular Apple here, Warner's King, Tower of Glamis, Ecklinville, and a few other kinds are being extensively grafted, and some of the old favourite dessert Apples still retain their good name, notably Red Quarrenden for an early, and Golden Knob for a late variety; to such an extent is re-grafting carried that it is more the rule than the exception to find nearly all the trees double-grafted, for as the market value of particular kinds varies from time to time, so does the extent to which that particular kind is grafted. Growers watch the markets and grow what is most remunerative, and the loss of a crop for a year or two in the case of re-grafted trees is amply compensated for by the finer and more abundant produce which they afterwards produce.

The After Management of grafted trees is very simple; they are almost invariably very prolific, and the crops which they bear stop anything like useless growth. The energy of trees in a healthy state appears to be altogether applied to perfecting the crop and a fresh set of fruit-buds for another year, and in this respect all early kinds of Apples have a great advantage over late sorts that are not gathered much before the fall of the leaf. For in the case of Keswick Codlins, Stone's, and Red Quarrendens, the best market prices are realised in August and September, when the trees, even if heavily loaded, have several weeks of our best autumn weather to recover their energies, and to lay the foundation for a good crop the following year. But to keep up this fertility year after year they must have sufficient nutriment, and the best way of giving this in the case of orchards on Grass is by feeding them off with sheep, not only in summer, but in winter, with oil cake, roots, &c. It is generally conceded that Apples grown on this system are better in every respect than those grown on cultivated land, and before Apples again become as plentiful as they ought to be, old-fashioned orchard trees must become the indispensable adjunct of every garden. The restrictive system has been tried with but very meagre results, as the state of fruit room shelves testify, and I would strongly recommend anyone wishing for a good supply of Apples the year round to adopt the unrestricted orchard tree style; if they do not bear, re-graft and await the result.

J. GROOM.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Baked Apples and Cherries.—Your brief notices of "Nature her own physician" reminds me forcibly of the importance of Apples in this connection. This was brought under my notice many years ago by a young botanist of delicate constitution, who seemed nearly all brain, a chemist by profession. He told me that the only thing he could find to suit him as an aperient was a baked Apple daily as his simple dessert. Since then I have met with many similar cases. It is singular that eaten raw they produce mostly the opposite effect. They must be baked with the rind intact. Another striking case of fruit as medicine came under my notice some years since. It was that of a Manchester cloth manufacturer, who was always well in the Cherry season, and seldom at any other time. He almost lived on Cherries, raw and cooked.—D. T. F.

Blood Dressing for Vines.—Does your correspondent (p. 220) mean the ordinary manufactured "Blood Manure?" if so, let me inform him, and others of your readers who have not used it, that it is one of the best manures that can be employed for any crop—fruit or vegetable. It might be most beneficially applied to Vine borders by spreading it over the surface, forking it down close to the roots, and finishing up with a thorough watering. This would convey much of the nutriment down to the lower roots, and the result would soon be apparent.—J. MUIR, *Margam*.

—"Constant Reader" (p. 220) will act wisely if he foregoes his resolve to apply such a manure to his Vines at all. But if he must use it, let it be in a decomposed state, and mixed with a quantity of good loam. Vines are most fruitful, and maintain their vigour for the longest period in a calcareous loam with which has been intermixed a moderate proportion of charcoal, old mortar scraps, and as manure $\frac{1}{2}$ -in. bones. And all manure that in any way tends to make the soil plastic (as would be the case with blood manure) should be avoided. Besides the $\frac{1}{2}$ -in. bones that are mixed with the soil when the borders are first made, the only manure we ever use is a mulching of ordinary stable manure, and we never fail to have moderately good crops of Grapes.—W. W. H.

—Are the borders alluded to inside or outside; if inside, reduce the blood with water to the colour of strong beer, and apply it to the border as soon as the fruit is set at a temperature of from 65° to 70°. Give sufficient to thoroughly moisten the border through; give a second application as soon as the fruit is stoned; and a third as soon as the fruit is cleared off. It preserves the foliage, strengthens the roots, plumps up the buds, and is a good antidote against the attacks of

red spider—all of which benefits the future crop. If the border is outside and protected with covering, it should not be removed till the middle of April, when the blood may be mixed with good soil, and 2 in. or 3 in. in depth of it laid on the surface, the valuable portion of which the rain will carry down to the roots as they require it. If the weather should be dry at the time give sufficient water to keep it from baking.—JAMES SMITH, *Waterdale*.

Thinning Fruits.—Skilful fruit growers have long been in the practice of thinning the young fruit on overbearing trees, both for the good of the fruit that remains, and to prevent exhaustion of the trees, and we have often had occasion to urge the importance of the practice, which in addition to the advantages already mentioned, saves much labour in hand-picking afterwards numerous imperfect specimens, and much time in assorting after they are gathered. Before, or by the time they are 1 in. in diameter, the finest specimens may be seen for leaving, as the smaller and poorer ones are taken out. Some valuable hints on this subject were given at the last winter meeting of the Western New York Horticultural Society. Mr. W. C. Barry said they could not get good exhibition Pears without thinning the clusters. They used a pole with a notch in one end, which enabled the operator to twist them off rapidly. Mr. Moody, in speaking of the Northern Spy, which is so often defective on crowded trees, said it would yet become very profitable when we make up our minds to thin it thoroughly, and that if we would take off in time from three-fourths to seven-eighths, we would get nearly as much in measure, and twice the price of any other Apple we grow. Major Brooks thought the Spy could be best thinned by cutting out crowded branches. Mr. Vick said no one had any business to grow Apples who would not thin them.—*Country Gentleman*.

Pruning Damsons.—Although the Damson is such an accommodating fruit as to grow in soils and situations where scarcely any other will live, it is, at the same time, one of the first to require attention in the way of pruning; for, although so prolific when carefully pruned, it becomes well nigh barren if allowed to grow unchecked, more especially when young; if unpruned it continues to push up straight leading shoots that do not bear, and the trees are thus rendered loose and straggling and the fruit proportionally small; but under careful pruning it begins to bear the second year after planting, and seldom fails to mature a crop. In this neighbourhood, where thousands of Damsons and Bullaces are planted for shelter, and many acres together where the land is too light or stony for Apples, the Damson is pruned as carefully as a Currant bush; all the strong leading shoots being cut back half or more their length; the little spray-like shoots at their base are left intact, and the quantity of fruit that even small trees thus treated bear is astonishing. The Farleigh Prolific or Cluster Damson produces fruit like bunches of Grapes, so closely are they set on the branches. Doubtless many who hear of Damsons growing in hedgerows think such a fruit requires no pruning; but this is decidedly a mistake, for, as I have said, no fruit that I am acquainted with repays pruning so well. Old trees that have run up weakly and unfruitful, if sawn off to half their height, will be found to produce more fruit in a year or two than they had done for years previously; but such a valuable fruit ought not to be allowed to run to ruin for want of timely shortening.—J. GROOM, *Linton, Maidstone*.

SEASONABLE WORK.

Vines.—Where replanting in May is anticipated and the necessary preparations are in arrear a good ridge of compost should be placed over the drainage near the interior front of the house; the looser and rougher the better. Turn it occasionally, and when thoroughly warmed through, form the border 4 ft. to 5 ft. in width. Use good sods for the retaining wall, allow it to settle and plant with cut back or spring struck Vines when in active growth. Spread the roots out evenly, cover lightly, give a little warm water, and keep close with slight shade and moisture until fresh growth is apparent. For planting in external borders, last year's Vines should be shaken out and planted in dry warm compost before the buds burst into growth. Cover up the border with litter and allow the Vines to break steadily in a temperature of 50° to 55°. When the first thinning in the early house is finished, water inside borders with water at 80°. Mulch well and encourage robust growth by a judicious use of atmospheric moisture and daily ventilation. Give Hamburgs a night temperature of 60°, Muscats 5° more, run up to 70° with fire-heat, and 75° to 80° after closing on bright days. Having tied down and stopped all spur shoots, allow laterals and leaders to extend until every part of the trellis is covered, and look over the bunches a second time for imperfectly fertilised berries, which, if left, will mar the even appearance of the bunches when ripe. Encourage the Vines in the general Muscat house, also late kinds by

closing early with plenty of sun-heat and moisture charged with ammonia. See that inside borders are well watered, and guard against a high night temperature by reducing fire-heat and giving a little air on mild evenings. Lady Downes, Alicante, Mrs. Pince's Muscat, and Gros Colmar require a long season of growth, and the only way to prevent shrinking after they are cut has been pointed out in preceding calendars.

Pot Vines.—When the eyes placed in bottom heat early in the past month have made a start, they will remain apparently stationary, but careful examination of the soil will show the doubtful amateur that they are by no means inactive below the surface, as they are forming young roots, and when these have found their way to the sides of the pots, the formation of leaves and joints will soon follow. When free growth has set in, make preparations for giving them a shift into 4-in. pots, using light, rich, turfy loam and replunge in a bottom heat of 75° to 80°. Keep the pit close and moist, water sparingly, and encourage short jointed, sturdy growth by placing them near the glass. It may be necessary to shade slightly on bright days; but when fairly started, this may be discontinued, as Vines in all stages of growth delight in full exposure to light and sunshine. Examine cut back Vines that have been shaken out and shift into larger pots before the roots become pot-bound. If intended for fruiting next year, an early and well ripened growth is important, as the canes can then have a long rest before they are taken in for forcing. Fruiting canes will now take liberal supplies of generous liquid and perhaps a little new top-dressing as active roots appear on the surface. Encourage lateral growths and keep the foliage free from insects by sponging with soapy water before they have time to spread.

Grape Room.—If the bottles have not hitherto been filled up with water and a portion of the bunches have been used, the bottles thus set at liberty should be emptied, washed, and refilled with soft water. A corresponding number of bunches may then be transferred to them as a means of setting others at liberty, which may be treated in like manner until the whole of the stock has been supplied with fresh water. It will be necessary to look over the bunches once a week for decaying berries as one faulty berry soon affects another; but where carefully attended to, and the room is kept dry, cool, and properly ventilated, the loss amongst well ripened Grapes will be very small indeed. Let the temperature range from 40° to 45°, keep all side ventilators and windows closed in wet weather, and apply a little artificial warmth to drive out damp when the external atmosphere is dry and favourable to ventilation. As a proof that bottled Grapes are easily managed, I may state that I allowed the temperature in my room to fall to 38° during the severe weather, the berries are fresh and plump, and I have not lost 1 per cent. since they were cut the first week in January.

Late Orchard House.—Unheated orchard houses must be retarded in order to escape injury from spring frosts when the trees are in flower; but with a flow and return pipe along the front of a lean-to and all round a span roof steady progress may be encouraged as a very moderate apparatus will maintain a temperature of 40°, in frosty weather, and keep the atmosphere in motion when damp and foggy. As the sun gains power, water must be given in greater quantities, and good syringing will play a very important part until the flowers open, when the stems and floors only must receive moisture. The best time for the present to water the trees is early in the morning, but when the fruit is set and the growth rapid, the evening will be preferable. Warm soft water is best for the roots, and it should always be used for syringing, as it is free from calcareous matter, which disfigures the woolly coat of the Peach. A suitable temperature for a mixed collection of fruit trees may range from 40° to 50° at night, and run up to 60° by day; but a lower temperature with a dry atmosphere will do no harm. Smoking just before the flowers open must not be neglected, and fertilisation will of course receive unremitted attention.—W. COLEMAN.

Effect of Frost on Plants.—The fact that many plants resist a certain degree of cold one winter and succumb to the same temperature, or to even a higher one, on the succeeding winter is certain, and has been noticed by many. Therefore it must be admitted that there is a something other than the temperature which, either by its presence or its absence, strikes the difference between life and death. What that something is is a matter of great importance, for, supposing it to be known and to be possible of application, it would evidently take the place of heat. We frequently read of plants in the south of Europe not only living, but thriving, at a temperature that would prove fatal to the same species in England, as, for example, Peas in "Notes from Cannes" by "R." in your last number. The question is usually disposed of in an off-hand manner,

after this fashion: "Ah, but it is so dry there, a dry cold does no harm"; this sounds well, but unfortunately it is often dry and cold here too, and the plants perish all the same. Is this then a sufficient explanation? Some years ago, owing to a winter's residence in Draguignan, I was led to make some experiments which quite satisfied me; they seemed to establish the fact that there was a constitutional difference in the plants themselves which enabled them to withstand the cold, and a difference which I think might, by careful management, be imitated here with a like result. Without going into detail I will simply mention that I took solutions of juices of various plants, and exposed them to the cold, and found that they either remained liquid or congealed, according to the concentration or the nature of the salts contained in them. To chemists it is so well known that liquids either freeze or not, according to the nature and quantity of any salts they contain, that it is unnecessary to say more. But from this fact I argue that it is not the low temperature that destroys vegetable life, but the congelation, or rather the disintegration of the fibre, caused by the expansion of their juices at the freezing point, that kills, and that this may frequently be averted by a supersaline state of the sap. Long summers and a scarcity of water doubtless effect this in the south, so I think the blame ought to fall on our summers and not on our winters. I am no gardener, but I think it would be possible to rear many plants during the summer under such conditions as would enable them to compare favourably with those of more favoured and sunnier climes.—B. PIFFARD, *Hill House, Hemel Hempstead.*

LATE NOTES AND QUESTIONS.

Fungus.—Ignoramus.—There are several moulds peculiar to *Agarics* and similar fungi, as *Sepeledium*, *Sclerotium*, and others. They are not at all uncommon on Mushroom beds, and some (as *Sclerotium*) are extremely beautiful under the microscope. It is impossible to give a cause for the attack; one is the natural prey of the other, although there may of course be some pre-disposing cause. Fungi in the meadows and woods, young and apparently healthy individuals, are attacked in a precisely similar way.

Plants for a North Wall.—Embley.—*Escallonia macrantha*, *Ceanothus azureus*, *Jasminum multiflorum*, *Ribes speciosum*, *Wistaria sinensis*, *Choisya ternata*, climbing Roses, Clematises of sorts, *Abelia triflora*, *Rubus deliciosus*, *Forsythia suspensa*, *Jasminum nudiflorum*.—W. G.

Grubs in Border.—Longford.—They were so dried up when they reached me, that in spite of all my endeavours to relax them, I could make nothing of them. Can you send some more packed in damp Moss.—G. S. S.

Rose Stocks.—New Sub.—You will find an article on Rose stocks by Mr. Baker in THE GARDEN for this year (p. 125), and Mr. Fish has also lately written on the subject.

Price of Herbaceous Plants.—Mrs. T.—Your letter has been forwarded to our correspondent.

Crocus Buds not Coming to Perfection.—I have a quantity of rare expensive Crocus bulbs, potted in 3-in. and 4-in. pots, on a shelf near the glass of a conservatory, with an average temperature of 40°, others on stages at different distances from the glass, and some pots of four bulbs on the floor. I have hardly had a good bloom. Hundreds of buds are formed on all the plants which wither and die off with a sort of rot at once, some plants being perfect cascades of dead buds. They hardly have any water, but are not allowed to get too dry. The drainage is very, perhaps too, efficient. I should be so much obliged for a hint as to what to do. If Mr. Fish or Mr. Maw would take up the subject, I and hundreds of others will, I am sure, be most grateful.—GIROFLE.

Light and Dark Fuchsias.—At our last flower show a difficulty arose as to what constitutes a light and what a dark Fuchsia; a plant with light petals and dark sepals was entered as a dark variety. Could someone kindly inform me whether it would be generally considered to be so? and what distinctions we should use in our schedule so as to avoid a recurrence of this difficulty, and at the same time have separate competitions for light and dark varieties?—G. A.

Brown Spots on Grapes.—Can any one inform me what causes little brown spots to come on Grapes when about to colour? I make it a practice to paint my pipes with sulphur just after stoning, and give back air as the weather will permit, and go on in the usual way; but still I have a few bunches with the spots in question. The Vines are not started until March.—A. D.

Jerusalem Artichokes.—We have never been able to get these to grow here. What kind of soil do they require? The garden is old and the soil clayey. I shall be most grateful for any advice as to what can be done. Do they like a sunny situation? or will they grow equally well in the shade?—H. P. M., Wick, N.B.

Pot Vines Unfruitful.—I have some pot Vines which started well and made satisfactory growth, but they are unfruitful. Will they be worth growing on for fruiting next year? if so, will the pots they are in, 12½-in., be large enough? or will they want larger?—K.

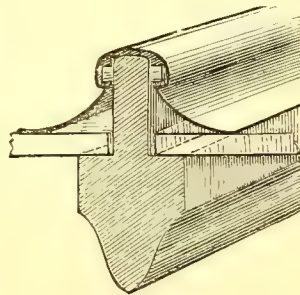
Greenhouse Blinds.—Can any of your readers inform me whether the French lath blinds for greenhouses are good for plants? Are they too dark for this climate? What are considered the best blinds if the French are not?—F. M. B.

Famon.—You will oblige us by sending your name and address, without which we cannot insert communications, however interesting.

Names of Plants.—M. E. G.—*Cacalia cylindrica*; flowers yellow.—D. L.—The *Cypripedium* appears to be named correctly. C. Reichenbachii is a greenish flower, with long and narrow lateral sepals. The other Orchid of which you send a leaf is apparently *Phaius grandifolius*; send when in flower.—W. Farrow.—*Salvia Ileri*.—*President*.—The yellowish flowers, *Masdevallia ignea*; the other is M. Harryana. The Cattleya is a variety of C. Trianae. The *Oncotoglossum* is O. Pescatorei. Anon.—1, apparently a species of *Lavandula* (send in flower); 2, *Saxifraga ligulata*; 3, *Coronilla glauca*; 4, a species of *Callistemon* (send in flower); 5, *Pellaea hastata*.

Filling Ice Houses.—Mr. Groom (p. 155) asks the opinion of those engaged in this work as to the merits of the various ways of storing ice; at the same time he describes his own mode of procedure, which is precisely what I have practised for some years, with the best results. I would strongly recommend Mr. Groom's plan to those who advocate packing with straw, which not only prevents one from getting so much ice into the well, but acts as an air conductor. Some ten years ago I used straw packed between the ice and the walls, but have discontinued it, and since then the ice has kept much better. I have, on one or two occasions, sown broadcast a little salt on the ice, in layers, as the work of filling proceeded; but from this, I think, no benefit was derived. I should be glad, however, to learn what result has attended its use by others. I prefer ice from 2 in. to 2½ in. in thickness, secured, if possible, before a thaw sets in; when hard frozen it yields freely to the small wooden mallets which we use for breaking it up into as small pieces as possible, partly before it goes into the house, and more effectually when inside, by as many men as can find room to work, pounding it into small particles, which will run in among the rougher pieces, and so consolidate the whole into one solid mass. We fill the house as full as possible on the occurrence of the first frost that freezes hard enough for the purpose; and again in spring we make good, if we have the opportunity, what has wasted through the winter. We also make a good heap outside the passage door (which faces north) after filling the passage full of non-conducting material, and cover the heap with sawdust, straw, and lastly with Yew branches, which keeps all snug and tidy; and I may say that we are seldom without ice.—J. ALLSOP, *Dalton Hall, Hull.*

Messrs. Fletcher, Lowndes & Co.'s Putty Substitute.—Mr. Fletcher brought this to our notice recently, and, so far as one can judge, it seems a well-considered and useful contrivance. The many efforts to abolish putty and paint, on the part of Mr. Rendle and others, seem at last to be turning the flank of the enemy's position. Mr. Fletcher, as a careful observer of the various contrivances and an expert in this, submits his own arrangement for meeting the various difficulties and defects encountered in glazing without paint and putty. The substitute for putty is formed of a section of hard, incorrosive metal that lies evenly and with a uniform pressure upon the surface of the glass, however uneven such surface may be, and can be adapted to any form of glazing



bar, whether in wood or metal, now in ordinary use. The annexed illustration shows one of half-a-dozen adaptations which the inventor proposes to use it for. We think this mode of glazing deserves trial and consideration.

Note.—The bitter feelings of Mr. David Thomson, in respect to THE GARDEN and its work, have long been accumulating in a deep reservoir, which, overstrained, has burst at last. A few, perhaps, may remember that the question (originated by Mr. Thomson) concerned the flower garden as regards the cost of staking—a theme that hardly deserves a violent attitude. This is the way he talks of it:—

Long before the editor of THE GARDEN came to this country we had devoted for years much of our spare time to hardy herbaceous plants, and we could show him a herbarium of them that was formed before he knew a Rose from a Thistle.

What a logical line of argument this! But knowing so much and knowing it so long why make so pitiful a use of it as to get angry and resort to personalities in discussing such a subject? And that is not all, as he with noble modesty proceeds to give his infinitely small valuation of our "standing." But surely this is going beyond the bounds of decent argument, Mr. Thomson. The noble duke you serve has probably not included among your duties that of pronouncing in a public print on the position of those of whom, in your vexed mood, you are not well fitted to judge. A very narrow soul has usually capacity for depreciating others. In that high elevation of yours you, no doubt, are justified in looking at the kingdoms of the world as if they were all dominated by those stony terraces you have the care of; so, too, the sparrows on the dome of St. Paul's take a complacent view of the human creatures passing beneath them. In pity that one like you should not give an example of fair discussion to the rising generation, we pass the personal question raised by you, and shall hope at an early date to find a corner to discuss the matter from a more general point of view.

Respect for the Dead.—The Chelsea local authorities have obtained the necessary faculty from the Consistory Court, and, in accordance with the powers with which they are now armed, the gravestones in the Chelsea Churchyard will shortly be removed, and the churchyard improved and laid out ornamentally or recreative purposes.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ORCHID GROWING FOR MARKET.

WITHIN the last few years, owing to the rapidly increasing demand for cut flowers of Orchids in the market, and a more plentiful and cheap supply of imported plants being now obtainable, several market growers in the neighbourhood of London have been induced to grow Orchids on a large scale for the sake of their blooms in a cut state. Foremost among these is Mr. Wright, of Turner Road, Lee, who devotes a dozen houses or more entirely to Orchids for market purposes. The plants are, therefore, managed in such a manner as to obtain the greatest quantity of bloom, and only those kinds are grown on an extensive scale that are found to meet with a ready sale. One of the principal characteristics of a profitable market flower is durability in a cut state, for no matter how beautiful it may be, it will be superseded by other, perhaps less beautiful, kinds if it lacks this property. Thus it is with Orchids; the most beautiful kinds are not chosen for growing for profit on account of the fugacity of their flowers. Considering the vast number of kinds of Orchids in cultivation, larger even than that of any other class of tender plants, it is remarkable how few find favour with the general public; therefore, though Mr. Wright's collection contains a large number of kinds, there are comparatively few that he grows largely, and it is interesting to observe the caprices of popular taste with regard even to Orchid flowers. For example, the gorgeous flowers of the *Cattleya*, so much prized by Orchid lovers, do not find nearly so much favour as those of *Cœlogyne cristata*, which is a good market flower. Of the former, but a few plants only are to be seen in Mr. Wright's garden, while to the latter a house is entirely devoted, and some of the plants are really marvellous specimens, measuring 4 ft. and 5 ft. in diameter. The flowering season of these is just over, but we are assured that 145 spikes with 4 or 5 flowers on a spike were cut from one plant alone. With regard likewise to the *Odontoglossums*, *O. Alexandræ*, or *crispum* as it is sometimes called, is by far the most popular kind in the genus, a circumstance not to be wondered at, as it is one of the most beautiful, and the flowers when cut are very enduring. Other kinds form excellent substitutes for it, such as *O. cirrhosum*, but this even does not appear to find favour in a general way. *O. vexillarium*, beautiful as it is, will never be so popular as *Alexandræ*, as it is so much more difficult to manage, a remark which also applies to its lovely congener *O. Roezli*. Of these kinds, however, there is a goodly quantity in Mr. Wright's houses, and their number appears to be on the increase by means of imported plants. They are grown in an intermediate temperature, and, in common with the rest of the collection, are in excellent condition. The collection consists mainly of cool house kinds, which are found to be the most remunerative, and, besides, they last a far longer time than the generality of bothouse sorts. Of *Odontoglossum Alexandræ*, the queen of all cool Orchids, no fewer than 4000 plants are grown of this kind alone. The principal house in which it is grown is a long raftered lean-to, having a northerly aspect; it contains some 400 plants, varying in size from those in 12-in. to those in 6-in. pots, and all in robust health, the plump bulbs and long arching flower-spikes sufficiently indicating that their culture is well understood. Though the flowers are being continually cut for market, there is usually a large quantity of bloom at this season, and it is one of the prettiest floral sights imaginable to see this lovely Orchid, with its numerous varieties, in such perfection. Several named varieties of it are represented, and there are many others quite as distinct, a circumstance to be expected in such a large collection, chiefly formed from imported plants. A somewhat unusual plan of growing *O. Alexandræ* is pursued here in low brick pits heated by a row or two of pipes; these (two in number) are spacious, and hold some 2000 plants, principally those that have been imported within the last year or so. This mode of growing cool Orchids seems an admirable one, as the plants may be placed closer to the glass than in a house; the only drawback seems to consist in their not being so much within reach as they would be in a house.

Other kinds of *Odontoglossums* grown in quantity for cut flowers are *O. Andersonianum* and its varieties, *O. gloriosum*, *pulchellum* and its major variety, *cirrhosum*, and *Pescatorei*. These, besides a good selection of *Masdevallias*, formed chiefly of *M. ignea*, *Veitchiana*, and *Harryana*, comprise the chief of the cool-house Orchids. The principal kinds grown of those requiring a hotter temperature are *Phalænopsis Schilleriana*, *amabilis*, and *grandiflora*, and *Dendrobium nobile*, *Wardianum*, *lituiflorum*, and *crassinode*. The *Phalænopsids* have a house to themselves, and beautiful they are, particularly *P. Schilleriana*, which has large healthy leaves and long branching spikes furnished with several scores of flowers. It is a favourite in the market, and too much cannot be grown of it. The only kinds of Lady's Slippers that seemed to be cultivated in quantity were *Cypripedium insigne* and the lovely white-flowered *C. niveum*, which is grown here better than we usually meet with it.

The houses seemingly best suited for Orchid growing for profit are long narrow ones with low pitched roofs, so as to allow of the plants being placed as near the glass as possible, one of the main conditions of successful Orchid culture. Ventilation is amply provided for and adapted for giving fresh air to the plants in winter as well as in summer. For this purpose at each end of the long and narrow span-roofed houses in question there is a triangular trap-door made so as to fit in the angle of the roof, by opening which a current of air is kept constantly circulating through the house, but above the plants; hence in the coldest days air can be admitted without being in any way detrimental. The heating apparatus is of course carried out likewise in an efficient manner, and the houses being compactly grouped, the heating is necessarily much facilitated. Throughout the whole collection the system of exposing the plants to the fullest amount of light is particularly noticeable; indeed, in some of the houses the original stages, which were mostly low and probably intended for other classes of plants, have been furnished with a superstructure, so as to bring the plants as near the roof as is practicable, thus clearly showing how important is the influence of light on Orchids and its free admission by means of clear glazing.

W. G.

VARIETIES OF *CœLOGYNE CRISTATA*.

OF all the white-flowered Orchids now in blossom few are more beautiful or useful than *Cœlogyne cristata*. It is easily grown in an ordinary warm plant-house or Fernery, succeeds best in a well-drained pan of fibrous peat and charcoal, surfaced with living *Sphagnum Moss*, enjoys a daily shower bath from the watering-pot when growing, and—and this is the secret—when the closely overlapping bracts of the flower-spikes open about Christmas, or earlier, stop watering and allow the plant to become not quite dry, but to reach the dry side of moistness. Under this treatment the flowers open freely in an airy house, the temperature of which does not fall below 45° at night, and the blossoms will remain fresh and lovely for weeks.

There has been quite a little commotion amongst some of my friends this year about this plant. Several have written to know how many varieties of *Cœlogyne cristata* there really are. Well, there are three or four at least in cultivation. We will begin with the type, which generally bears from three to five flowers on a spike. Crest of the lip pale golden yellow, with some indications of an orange-coloured blotch at the very base of the lip where it joins the column. Sepals and petals undulated; but there is here and there a better form of the typical plant, even small bulbs of which bear from 5 to 7 flowers a third larger in size than those of the type. The lip in this case has a distinct bright orange blotch at its base, and the orange colour runs through its whole fringed crest, giving it a very bright appearance especially, and this is the best test, especially when seen side by side with the typical kind. The sepals and petals are broader, of more substance, and so less undulated and more effective than those of the old form. "Ah!" said a veteran Orchid grower to me when I showed him the type, and spoke of the last-named form, which is well worth the trivial name of major; "Ah!" said he, "your major is simply the old kind well grown." It was in vain my talking, so I took him to another place and showed him two plants, one of each variety, each nearly 3 ft. through, and grown under precisely the same conditions, but as distinct as, say, Woolley's *Sobralia* is distinct from the tall gawky old *Sobralia macrantha*, and he was satisfied that there was a real distinction.

Under first-class culture the old *Cœlogyne cristata* will produce from five to seven flowers on a spike, but under the same treatment

the "major" variety will produce from seven to nine flowers. Number of flowers, however, does not adequately represent its superiority, which is much more distinctly and unmistakably shown in the size and substance of the flowers and in the brightness of the lip colouring.

I have these two varieties, but there is another form which I do not possess. The variety to which I allude is the pure milk-white *Cœlogyne cristata alba*; no yellow stain on the lip, no orange blotch, no lemon-yellow suffusion whatever, but simply a pure and lovely white throughout, comparable with *Lælia anceps alba* or *Calanthe nivalis* only in its purity.

Yet another form, and this a better known, although by no means common kind. It is the variety known as *citrina*, from the stain on the lip being pale lemon-yellow instead of pale golden or orange-tinted. It has, moreover, also been named *Lemoniana* in compliment to Sir C. Lemon, and not because its lip is lemon-tinted. If anything, its bulbs are larger and more oblong than those of the preceding form, and, if possible, the white of the flowers is more snowlike and delicate, and it is nothing uncommon to see nine flowers on a spike when the plant is well grown, nor is it a disadvantage that its blossoms are produced a month or six weeks even after those of other varieties grown under like conditions. One of its wreaths of snowy blossoms entwined with the tender greenery of the Boston Vine forms a tiara fit for a queen.

Cœlogyne cristata has a wide range in India. It is found in Sikkim, Silhet, and Nepal at heights above sea level varying from 5000 ft. to 8000 ft. There is, or was, a variety having leaves distinctly variegated with white stripes.

CANDIDA.

—We have a variety of *Cœlogyne cristata* that answers exactly the description given by "J. S. W." (p. 251). I do not think that it is new, from the fact of its having been grown here for several years. Whether it bears a name as a distinct variety or not I cannot say; it is certainly superior to the ordinary kind, inasmuch as it bears more flowers on the spike, and they are of better substance; still, both are beautiful. I have also thought that the foliage is somewhat darker than that of the type.—CHAS. J. WHITE, *The Knoll, Biddlon, Shipley, Yorks.*

Finely-flowered Dendrobium Wardianum.—Mr. Soper sends us a photograph representing a fine example of this Orchid grown in his garden in the Clapham Road. It has thirty-five large flowers on it all arranged on the upper half of a long stout pseudo-bulb—quite a floral treasure. Such a result is all the more remarkable, as Mr. Soper's garden lies in a thickly populated neighbourhood, and it speaks highly of an Orchid that thrives so well in a town garden.

Dendrobium Hilli and speciosum.—I always thought I could distinguish the growth of *Dendrobium Hilli* from that of *D. speciosum*, even in the dark, but I find I am mistaken. I thought it had longer and more slender pseudo-bulbs than *D. speciosum*, and so, as a rule, it has, but this is not invariably the case. I saw a specimen of it at Mount Merion the other day with precisely the shorthorn growth of *D. speciosum*, so that the white flowers, as distinguishable from the sulphur-tinted ones of *D. speciosum*, is the only difference between these quondam species. No doubt *D. Hilli* is nothing more than a pale-flowered form of *D. speciosum*. Both these plants delight in full sunshine and not over much moisture. A dry, airy intermediate house suits them best. If only one is to be grown then take *Hilli*, which is by far the best and most useful.

—B.

New Orchid (Phaius tuberosus).—One of the most beautiful and distinct of the numerous Orchids in flower in Sir Trevor Lawrence's unique collection of these plants at Burford Lodge, Dorking, is this species, which is a native of Madagascar, and this is, we believe, the first time it has flowered in cultivation. It has a terrestrial habit of growth like that of other *Phaiuses*, the leaves being about 1 ft. in length and narrowly lance-shaped. The flower-spikes, which slightly overtop the foliage, proceed from the base and are erect, about 1 ft. high, and bear some half-dozen flowers each. The flowers measure about 2½ in. in diameter, the sepals are pure white and lean over the lip, which is about 1 in. broad and shallowly concave. The colour of the upper or largest part is pale yellow copiously freckled with a chocolate-brown. The lower part of the lip, which is separated from the rest by a golden ridge, is quite different, being white and rosy-pink blended in an exquisite manner. The beautifully crisped margin, and a singular erect tuft of hair, conspicuous within the cavity of the shell-like lip, combine to render the flower even more remarkable. Though as yet extremely rare, we hope to hear more of this Orchid and see it distributed widely. This plant was growing in a moderately warm, moist house

in company with other Madagascar Orchids, *Angræcum sesquipedale*, and others.—W. G.

GARDEN THOUGHTS.

"E. H. W." kindly answers my question by return of post: "I never got as far north as the island of Yezo, but have no doubt whatever that the Rose which Miss Bird mentions as covering the plain near the sea is the Japanese *Rosa rugosa*. Its chief beauty is in its hips, but in our less sunny climate they rarely develop fully, either in size or colour. The latter is that dull purplish-red which we see in the Boursault Rose, as I daresay you know, though the blush white form figured in *THE GARDEN* is the better known variety in England, on account of its superior beauty." From some other remarks I infer that in the opinion of "E. H. W." this Rose, according to Miss Bird's measurement, has considerably enlarged the dimensions of its hips, and corolla also, since he last saw it in Japan.

How the Rose takes us to all parts of the habitable world! We went from America to Japan, and now, returning home, I find on my writing table from Germany also the sure and welcome proof that her royal supremacy, like the supremacy of truth, is acknowledged *semper, ubique, ab omnibus*, always, everywhere, by all. Some two years ago Dr. Fredk. Worthmann, one of the professors at Heidelberg, did me the honour of translating into German my book about the Rose, and now a volume, the most attractive in appearance which I have seen upon the queen of flowers, royally clothed in scarlet and gold, most artistically and profusely illustrated, beautifully printed on the best of paper, is sent to me with brotherly greetings by the author, Herr Th. Nietner, of Potsdam. He writes to me in English, but, to my shame, I cannot respond in German. A slight acquaintance, which I made in my boyhood, with the flute of his country does not seem to bring me material help, and my degradation vexes and embarrasses the more because I see "Reynolds Hole" here and there in the text, and feel the hopeless curiosity of one who at a large dinner party hears his name spoken at the other end of the table, and, listening for further information, is attacked in the attentive ear by the mere verbiage of a garrulous neighbour.

But there is no difficulty in appreciating the admirable and substantial elegance of the material book, or the artistic grace of the coloured illustration. Although the Roses selected for portraiture are not always those which we English Rosarians should have chosen to represent their class, and have not, as single specimens, the size which they attain with us, there is a natural ease and freedom in the arrangement of flower and foliage, and a bright freshness of colour in both, which seem never to lose their charm. Might not some of our own artists, who paint the Rose (we who see *THE GARDEN* have good reason to be satisfied with the painting of most other flowers) take a hint from their foreign brethren? Some of our grandest Roses have been delineated as though everything had been done by rule and compass, and the effect is as though Nature made her Roses in a mould, as a cook makes a *Ranunculus* out of a Turnip, or cuts a leaf from the paste to ornament her pork pie.

Audi alteram partem, cries the painter; "the blame is not with us, but with you. It is you formal, fastidious Rosarians, who will have every Rose as large and as round as a finger-glass, and every petal 'regularly disposed,' as you call it; it is you florists, who say we must have this colour, and we must have that shape (and, with an obstinacy which is almost beautiful, never rest till you have it); it is you who

would spoil our art. If we offer you truthful representations of flowers as we see them, you say, 'It's very pretty, but it wouldn't do for the judges.' Don't know who the judges may be, but fancy they must be all exactly alike: same cut of hair, same simper on countenance, same amount of starch in collars, same make and colour of costume, same number of buttons." There is much good argument in this defence, but I am constrained to say, nevertheless, that the English painter of Roses, when under no restraint, is excelled by the French and German, and that the most charming portrait of the queen of flowers which I have ever seen was painted by Madame Hegg, of Nice.

*

Why should not the National Rose Society give a prize or a medal for the most successful presentment of a Rose? Who shall award it? The six Rosarians who have won the first honours at the Rose show to which the pictures are sent, with as many ladies, devotees of the Rose, and—the president.

*

The only part of Herr Nietner's handsome volume which is written in English gives the result of a list of questions, issued by the president of the Horticultural and Agricultural Society at Wittstock, as to the merits of various Roses, with a view to ascertaining which were "the three most perfect as regards construction, form, substance, shape, habit, and scent, in the different colours." These questions were answered by forty societies, 147 nurserymen, and 135 amateurs. English Rosarians will be surprised to hear that Mrs. Bosanquet is preferred to Madame Vidot and Madame Rivers among the "white-tinted, blush, and flesh colour;" that Paul Neron precedes François Michelin, La Duchesse de Morny, Marquise de Castellane, and Marguerite de St. Amande among "the bright pink and deep rose;" that Lord Raglan has more admirers than the Duke of Edinburgh, or Exposition de Brie among the "scarlet and vermilion;" that Eugène Appert is superior to Charles Lefebvre, Abel Carrière, and Star of Waltham among the "purple and crimson;" that Souvenir de William Wood and Empereur de Maroc are more honourable than Xavier Olibo, Jean Liabaud, Reynolds Hole, Sultan of Zanzibar, and Pierre Notting among the "dark crimson and maroon;" that among the "pure white or slightly tinted" Teas and Noisettes, Aimée Vibert, Maria Guillot, and Sombreuil are the triumphant trio, defeating Madame Bravy, Devoniensis, Niphetos, Rubens, and Souvenir d'Elise; that of the blush, pink, and rose, Madame de Vatry is preferred to Catherine Mermet and Anna Ollivier; that Comtesse de Nadaillac is number twenty on the list of "tinted pink and rose;" that of the yellow Teas and Noisettes, Perle de Lyon, Perle des Jardins, and Lamarque are exalted above the Cloth of Gold; and that Belle Lyonnaise has just double the number of admirers who vote for Marie Van Houtte.

*

There will be less diversity of opinion as to "the five greatest favourites," namely, Gloire de Dijon, Souvenir de la Malmaison, General Jacqueminot, La France, and Maréchal Niel; the "five sweetest Roses," Maréchal Niel, La France, Gloire de Dijon, Rosa centifolia, and Pierre Notting (I should have included Devoniensis); but a great difference in the character of the flowers is evidently made by climate, and there is no universal standard of excellence by which we are to appraise the Rose.

*

There is a very pretty process of producing Roses for those who have the appliances, and they who have them not may procure the article from our friends, the nurserymen, during the early months of the year by budding or grafting on the rooted Brier, so closely to the soil that the scion may grow

in it as well as the stock, such Roses as Maréchal Niel, Climbing Devoniensis, Gloire de Dijon, Belle Lyonnaise, and Madame Berard. The Briers should be well established in 8-in. or 9-in. pots, and the Roses should be budded or grafted, started, and grown on under glass. They will make shoots from 10 ft. to 14 ft. in length, and these should be well ripened before the winter comes. Placed in a Vinery and trained up the rafters, they will make laterals, and bloom abundantly in February and March, and must then be removed to make way for the growing Vines. In the following season, trained round three or four strong sticks in a larger pot, they will make charming specimen plants. S. R. H.

NOTES AND READINGS.

The Gardeners' Royal Benevolent Society is a worthy institution, and has, we daresay, every gardener's goodwill if not his active support; but, judging from what has been said lately, its purpose has been either misrepresented or misunderstood. Two pensioners have lately been added to the list, one or both of whom have never subscribed a penny to the society, to the exclusion of other equally deserving applicants who have subscribed for years. The apparent injustice of this fact has awakened attention to the society's way of doing things, and the grumblers have been told to remember that the objects of the society are not of a "benefit," but a "benevolent" description, which means, we apprehend, that those who subscribe to it are not to expect any preference over those who do not should the latter apply to the society for aid and need it. Well, there is no objection to the name nor the purpose of the society, only let that purpose be fully set forth in future when gardeners are appealed to for their hard-earned annual guinea, for hitherto they have certainly been led to believe that the society was a benefit as well as a benevolent one. The trade has been enlisted in the society's service, and by circulars and otherwise they have brought considerable pressure to bear upon their customers to make them become members and subscribers, and the probable future "benefits" have been set forth by them (under honest convictions no doubt) in no unmistakable manner, and the amount of cash they presented to the society not long since showed that they had been tolerably successful in their mission. Though sympathising with the aims of the society, we have never regarded it as possessing a great amount of vitality, and it might be pointed out to gardeners that they could invest their guineas annually to a better purpose and with some certain prospect of reward, though the "brotherly" instincts of the craft, we feel sure, will never let them forget the claims of their less fortunate fellow labourers when these are presented to them in any deserving aspect.

*

The noted English cook of a distinguished nobleman has gone to Paris, 'tis said, to challenge French cooks to battle on their own ground, and, if possible, to dispel the delusion entertained by the English aristocracy that every café keeper in Paris is a professional cook as soon as he arrives in London. Gardeners are interested in the contest, and wish their countryman success, for French cooks are their mortal enemies in nine cases in ten. An English man cook is a reasonable mortal and a French cook is not. The latter has, however, some clearly defined objects and ambitions. His object is to find fault with every earthly production of his employer's estate; his ambition is to get a *carte blanche* to procure everything he needs, from a bunch of herbs to a ton of Potatoes, from London or Paris. He usually succeeds in this purpose except with the *jardinier en chef*, whose attentions he cannot shake off so easily.

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A congenial and grateful task that must be to those writers who are at present engaged in magnifying the difficulties of Chrysanthemum culture. Where in the world have they been schooled that they have got it into their heads that a gardener needs a special schooling to enable him to grow a good Chrysanthemum plant fit "to set before a king." Nobody of sense credits a word they say. It is admitted that the exhibitor's formal plants and still more formal flowers require a certain amount of special care, dressing, and manipulation, &c., but the exhibitor's

"specimen" Chrysanthemum is not a whit better, and in appearance not by any means so handsome as a freely grown, healthy plant covered with that profusion of fine-flowers that it will produce under liberal culture and ordinary care. Let those who desire it grow their formal, scantily-flowered specimens by all means, and if it pleases them to believe that they have been initiated into a great mystery, and learned a secret that none but themselves know, nobody need care—the weakness or failing, whatever you may call it, is certainly of a harmless kind—but they ought to divest themselves of the belief that nobody but themselves can grow the same plants equally well, if in a different and more commendable fashion. The creed of the exhibitor is summed up in a few words—it is big plants, big flowers, the bigger the better, and formal shaped flowers in which not a petal is awry or misplaced that can be disposed of by any means, artificial or otherwise. He has a few other fantastic notions about training his plants and believes in such things as pyramidal, umbrella, and other shaped specimens, all of which are the product of the same school. We saw all these at a Chrysanthemum show in November last, and we have seen them often, and, it may be presumed, they were considered very ornamental and deserving objects, or they would not have been there.

The dead buds and discoloured shoots of the Roses are now beginning to show the destruction caused by frost. It is a woeful sight. Many gardens during the past two winters have lost nearly the whole of their Roses. The subject of protection, too much neglected in gardens, is receiving deserved attention in your pages and elsewhere, but it is to be feared that the process of bending down the tops of standards and dwarfs, and unailing wall Roses in order to bury them under the soil for protection is a too troublesome and laborious process for any but those who have "nothing else to do." A good mulching alone will be enough in a general way, and the earlier in the autumn it is put on the better. The fear has been expressed that the plants will not rest as quietly as they should do unless the soil about the roots is allowed to become frozen before it is mulched. Nature intends the plants "to be so rested," it is said, but we doubt if Nature ever fell into the mistake of preserving Tea and other tender Roses on the American frozen meat principle. If excellent "Sylvestris" will go further afield he will discover that Nature deals more tenderly with her wild Briers than the gardener does with his tender border Roses. Nature protects (mulches) first, and freezes afterwards. Roses in the naked and often hard soil of the garden are frozen at their roots long before the frost reaches the roots of the Brier under the litter of the woods, or the tussocky verdure of the hedgerows. One can push his walking-stick into the latter when he cannot drive a steel fork into his exposed Rose borders. An actually "warm" soil under a mulching of litter is a myth, for the temperature of the soil during frosts, as denoted by the mercury, shows it to be but a few degrees above the freezing point, and any point under 40° is a resting temperature for most all plants and quite low enough for Roses. We have no occasion to make empirical guesses on such practical matters when the actual facts can be easily ascertained. It must not be forgotten, moreover, by those who fear protection causing a premature or too early growth, that a surface covering keeps out heat as well as cold, prevents destructive alternations between the two, and above all, that a plant with its roots in a warm soil will endure the most frost even when it is in leaf.

Something has been elicited on the subject of a stock for the Maréchal Niel Rose. Mr. Allan's and "V.'s" notes must not be allowed to pass, like other literary shavings, away out of sight. Now that the Banksian Rose is mentioned as a stock, readers will probably remember that it was strongly recommended some years ago for the same purpose. Mr. Allan has a Maréchal Niel twelve years old on the Banksian, and others about half that age, all in the highest health; while the same plants on the Brier, and much younger, are dead or dying save one. The other day we saw an enormous plant on its own roots, with a stem as thick as one's wrist only three years old, placed under the most favourable position under glass, and not started into growth till March, and dying, as numbers have done before it elsewhere under similar circumstances.

It has been mildly hinted that some of those people who write about hardy plants and gardening do not quite comprehend the

subject; but one might go even further than this, and say that some were in a far worse plight. A "Paragon" went to Scotland at "midwinter with the snow 6 in. deep, and the thermometer indicating a temperature near zero," in expectation of seeing herbaceous borders in full blow, and was astonished to find that the long herbaceous border at Drumlanrig "was simply naked and bare, so far as flowers were concerned." A patch like this, "Paragon" thought, should show at a glance what can be done with such plants" (when the snow was 6 in. deep and the thermometer at zero), and it does. "It was simply naked and bare so far as flowers were concerned." Although he had to trudge some four miles or more from the station to the gardens through the "6 in. of snow," with hills and braes all around him, and the castle turrets standing out against the wintry sky like sheeted spectres, and the icicles, in all probability, dangling from his own beard, he still had faith that he would see a herbaceous border 600 ft. long and 20 ft. broad covered with flowers, and—"tell it not in Gath"—"it was naked and bare so far as flowers were concerned." Then in a paroxysm of grief and disappointment he cried out for those who speculate in hardy plants. The result was not encouraging—hardy gardening is a failure! Here "Paragon" was at the end of his pilgrimage, and here was a hardy border covered 6 in. deep with snow and the thermometer at zero, and not a flower on it from end to end. Oh! Mr. Thomson, you cannot "be up" in hardy plants, or your hardy garden would never have presented such a spectacle. Poor "Paragon!"

PEREGRINE.

THE ROCK GARDEN.

It would be well at this season for those interested in hardy plant culture, especially Alpines, to go over their rock gardens, not so much for the purpose of pulling up weeds as to note the effects of the past winter. It will be found that several plants have died and that many are severely injured. In some cases, frost almost lifts plants out of the ground, and it is to these that special attention should be paid. A general top-dressing composed of river sand, loam, and peat, with a little limestone grit added, varying a little according to the requirements of particular plants, will be found very beneficial. Taking care to press down the plants, you may scatter a little sand among straggling rosettes of Houseleeks, tufts of Saxifrages, *Dryas octopetala*, Creeping St. John's Worts, such as *Hypericum reptans* and *H. humifusum*, dwarf Harebells, and, in fact, such a mixture will be generally beneficial. Bulbous plants which, having been in their present quarters for two or three years, and which it may be desirable to transplant in the autumn, had better be noted and the exact spot in which they may be found marked. It will also be desirable to take account of dead plants. Such of them as you have, either by previous experience or for other reasons, been led to believe tender, may be replaced from the reserve stock in cold frames. With such, we have been very fortunate this year. The following, killed during the winter 1879-80, have survived this, viz.: *Agave utahensis*, *Diotis candidissima*, *Ianthe bugulifolia*, *Sedum farinosum* and *brevifolium majus*, *Margyrocarpus setosus*, *Helianthemum Tubularia*, *Erythraea aggregata*, *Francoa ramosa*. In addition, the following doubtfully hardy have survived, viz.: *Dasylyron Biglowi*, *Senecio pulcher*, *Lobelia ilicifolia*, *Onosma taurica*, *Echium albicans*, *Gentiana Kurroo*, *Selaginella helvetica*, *Ophiopogon Jaburan* and *spicatum*. Of plants which have died, and having none to replace them, seeds had better be procured. Hardy perennials and annuals may now be sown in a cool frame, tender ones indoors or in a hotbed. Reserve Stock may be lifted from ashes, in which they have been plunged for the winter, the surface-soil stirred, and a watering given to settle the soil lifted by frost. From February to November there may always be found something of interest in the rock garden. This year's flowering season may well be said to have commenced. Dotted about in flower are tufts of the spring Heath (*Erica carnea*), patches of winter Aconite, *Scilla sibirica*, *Cyclamen Coum vernum*, varieties of *Hepatica triloba*, *Crocus vernus*, *C. aureus*, and *C. versicolor*, besides the distinct and pretty species *C. Sieberi*, an early flowering *Crocus*, clear pale purple, with yellow throat, *C. Imperati* and *C. biflorus*, double and single *Galanthus nivalis*, *G. Elwesi*, *G. Imperati*, and *G. plicatus*, a beautiful dwarf Grape Hyacinth (*Botryanthus pallens*), varieties of the Christmas Rose (*Helleborus niger* and *H. chinensis*), and the pretty little *Bulbocodium vernum*.

T. D. HATFIELD.

"The Wild Garden," with illustrations, by Mr. Parsons, is now being printed by Messrs. Clark, of Edinburgh, and will, it is hoped, be ready within six weeks' time.

THE FLOWER GARDEN.

ANNUAL POPPIES.

How beautiful these are, properly used, few of us have an opportunity of seeing, particularly as they were among the many things among annual flowers driven out of the way during recent years.



During the past year we saw them to great advantage in Mr. Miles' garden at Bingham, and also, though differently arranged, in Sir George Macleay's garden at Pendell Court, in Surrey. At Mr. Miles' they were in colonies, or groups, scattered in a very picturesque way, sometimes quite to the edge of a border mostly filled with green trailing plants. In this way the bold forms of the Poppies were well seen on the margin of a little lawn. In

great level masses or lines they would not be so good. They belong to a large class of plants of annual or biennial duration which deserve more attention than they usually get, though they require some trouble and taste to place well.

Mr. Frank Miles thus writes concerning the Poppy: "I think the most beautiful I grow are of the *Papaver Rhas* type. A few are seedlings of the autumn before, and lived all through the winter; but most of the masses you saw were seedlings of the same spring. I never sow them with any more care than to sprinkle the seed in the border in any place where the colour of red is wanted, or where there is a collection of early spring bulbs. Here the Poppies are in their right place, growing into good plants, while the Tulips, or Snowdrops, or Daffodils, or whatever it may be are blooming and making their leaf growth. After that the Poppies keep up a succession of bloom for several months, particularly if the plants have grown to a good size before flowering. I find the individual blooms very short-lived, but there are always such a multitude to follow that these Poppies are one of the glories of the garden, and play an important part in the foreground of my picture. The white form of *Papaver Rhas* I found in Scotland. I also sowed *Papaver umbrosum*. These forms have crossed with each other, and produced a lovely scheme of colour from red, through cerise and pink, to pale pink and white, most of them having the black blotch of *umbrosum*. Of course I prefer the single ones, but a few come double. They come up of themselves generally, but do little or no damage, rather serving to help the spring bulbs in ripening, and are easily pulled up if found to be weeds, that is, simply plants out of place.

FIRST SPRING NOTES.

THIS is our first spring-like day after an unusually long and hard winter. The skylark has been carolling aloft all the morning, clouds of gnats hover over the bushes, and all Nature is astir. Flowers are creeping up everywhere. Aconites, Snowdrops, Crocuses, and Primroses are plentiful, and amongst comparative rarities we have *Galanthus plicatus* and *Elwesi* in flower. We have also *Hepaticas* in bloom, and *Saxifrages*; *S. Burseriana* and *oppositifolia*, the two most lovely of all early flowers, come with the very first of them, and are thus doubly welcome. I have been looking round to see the fate of my treasures after the keen winter, and am rejoiced to find far less loss than could have been expected. Wallflowers again (now for the third year) are in sorry plight; their leaves are all shrivelled, except a small green cluster at top; but other spring bedding plants are all right, especially the *Saxifrages* and *Aubrietias*, which appear to have enjoyed the snowy winter weather, and to have flourished under it. Mr. Dod will be interested to hear that *Aquilegia glandulosa* (Grigor's variety) has come through the cold weather quite safely, and is showing strong crowns. His own beautiful variety of *A. canadensis* is also hearty and well. These have had no protection but a mulching of sawdust. Those in frames are of course safe, but my notes refer entirely to the open garden. I notice also that *A. cœrulea* and *cœrulea hybrida* are alive and well. *Chionodoxa Lucilæ*, kindly sent by Mr. Maw last autumn, is coming up strongly on the rockeries, so it is quite hardy. The *Trilliums* in the wood, where they are plunged in pots in a damp peat bog, are coming up very strongly, as also *Orchis foliosa*, both being much more forward than similar pots in cold frames where they are covered with Cocoa-nut fibre. *Primulas* of the denticulata section are everywhere coming up strongly, and are already showing large crowns of flower-buds like miniature Cauliflowers; *P. cashmeriana* and *rosea* are also looking well, but *P. capitata* is in a doubtful condition. I find *Polyanthuses* of the show sorts, such as *Cheshire Favourite*, *President*, *Exile*, &c., look better in the open ground than they do in frames; and of the rarer *Primroses*, the double crimson and the new *Arthur Dumoulin*, are looking very vigorous on a damp sloping bank. *Rosa rugosa* (which by-the-by is by far the most useful and most beautiful of all single *Roses*) is covered with strong leaf-buds; it will be the first in leaf of any *Rose*, and last year it was first to flower. We have a great many Christmas *Roses* yet in bloom, and they seem likely to last for several weeks; I find these do best on the rockeries under the lee of large stones. The flowers get less splashed and damaged and grow purer in colour there than in the open ground. Lastly, on looking over my *Roses* I find

much less damage than last year. Several are killed, but the rest look very well. I think the snow has saved them.

Didsbury, March 7.

BROCKHURST.

— We have had two very severe frosts on the nights of the 28th February and 1st March; the thermometer registered 12° and 11° of frost. Snowdrops are nearly over, but the double Lent Lily, red, yellow, and white Primroses, and the beautiful Anemone apennina, together with purple and yellow Crocus, are flowering profusely and are making our woods and borders look quite bright here and there.—JOHN C. TALLACK, *Prideaux Place, Padstow.*

HARDY FERNS.

(Continued from page 179.)

Lomaria alpina.—This is described as a native of New Zealand. It is dwarf and compact, and produces from a creeping rhizome abundance of dark shining green fronds from 4 in. to 6 in. in height. It is specially adapted for the rock garden, and should receive similar treatment to that recommended for the Ceterach, to which it would form a charming companion, and should, like it, be associated with Sedums and such like alpine flowering plants. This *Lomaria* is the only variety of the genus, so far as I know, that can be said to be perfectly hardy in this country, thus rendering it all the more desirable for the sake of variety.

Onoclea sensibilis is an old, but very beautiful hardy North American Fern that should be grown in every garden; it thrives best in rather stiff loamy soil. It is a deciduous species and produces two distinct-looking kinds of fronds, which are of a beautiful light green colour, and sometimes attain 2 ft. in length. It might be planted with advantage near the edges of shrubberies and groups of American plants.

Ophioglossum vulgatum (the common Adder's-tongue) is a widely distributed common plant, familiar to most people. As in the case of the Botrychiums, botanists do not class the Ophioglossums amongst true Ferns, but nevertheless they are worthy of notice here, seeing that they are so nearly allied to them. This species is generally found growing in moist meadows; therefore the best position in a garden for it would be in colonies, amongst groups of ornamental Grasses, where, in company with the Botrychiums and such flowering plants as Snowdrops, Anemones, Meadow Sweets, &c., it would form an interesting addition to our gardens.

O. lusitanicum, a dwarf variety of Adder's-tongue, is found principally in the Channel Islands. It is an interesting plant, but so wayward and capricious in its likes and dislikes, that it is very difficult to cultivate with satisfaction; therefore I cannot recommend it.

Osmunda regalis (the Royal Fern) is in all respects a noble plant, and one that well deserves its distinctive appellation, for when seen at its best few native plants present a more truly regal appearance, producing, as it does, handsome fronds from 6 ft. to 9 ft. in height. The fertile fronds are crowned with panicles, resembling flower-spikes, and hence it is commonly known as the Flowering Fern. This noble Fern delights in a rich spongy, damp, peaty soil and where an abundance of water is available during its growing season. The best position for this Fern is a spot sheltered by shrubs. Hardy Heaths, and similar plants, and some of the larger growing of the ornamental Grasses may be planted near and around it. It should be planted in clumps, and when once established will rapidly develop itself into large masses, the only attention required being, as already mentioned, allowing it abundant supplies of water during its season of growth. It would associate well with Tritomas and other ornamental hardy flowering plants. A variety of the *Osmunda*, called *O. regalis cristata*, with handsome crested fronds, is well worthy of extensive culture, and, in addition to its other good properties, it will thrive well in a pot. A notable addition to park scenery might be made by planting groups of Royal Ferns around the shady margins of lakes and in similar positions, in which their noble growth in summer would have a strikingly tropical appearance, giving variety and interest to the landscape. There are, in addition to our indigenous species of *Osmunda*, several hardy exotic kinds, natives of Canada and North America, which will thrive well grown along with the British variety. Amongst the most noteworthy kinds may be mentioned the truly beautiful species called *O. Claytoniana*, known to some as *O. interrupta*, so called from the peculiar form of its fructification; it generally grows from 2 ft. to 3 ft. in height, and the colour of the fronds when in good health is of a particularly bright green. It is deciduous and a really noble hardy Fern. *O. gracilis* is a slender growing graceful kind. *O. cinnamomea*, *O. cinnamomea angustata*, and *O. spectabilis* are also highly desirable and distinct varieties of this noble genus.

Polypodiums.—This valuable genus of hardy Ferns contains among its species and numerous forms many kinds of great hardiness and utility for the adornment of our gardens, and which will grow well in almost any position. The well-known and widely distributed evergreen *P. vulgare* and its many lovely forms and varieties, claim the first rank, not only on account of the intrinsic beauty of their evergreen fronds, so bright looking the whole year through, but also on account of the ready manner in which they adapt themselves to almost any position or requirement. Like almost all Ferns, they prefer shade, but if well supplied with water at the root during summer, the common Polypody will thrive in perfection even when exposed to the full rays of the sun—a valuable property in this species, and one which renders it easy of culture and as generally useful as the Lastreas. There is one essential point to be borne in mind, however, in the culture of Polypodiums, especially of the evergreen kinds, and that is to provide a soil for their roots rich in decayed vegetable matter. All who have had much experience in Fern collecting must have noticed how luxuriantly the common Polypody thrives at the foot of old hedgerows, pollard trees, and moist banks where its roots can have a constant supply of leaf-mould and other decayed woody matter. Therefore it is evident that if we wish to succeed in its culture, we must endeavour



Double Poppies (see p. 277).

to supply it when placed under artificial conditions with roots food as nearly approaching as possible that which it enjoys in its native habitats. This Fern should therefore be planted in a compost consisting of fibry loam, dry, tough, and fibry peat, and a liberal admixture of leaf-mould and well-decayed woody matter, and each autumn a thin top-dressing of similar material might with advantage be added; by this means a plentiful supply of natural food will always be available for its roots. If planted in dry positions it would be benefited during the hot summer months if a daily sprinkling overhead with water was given it. Whilst speaking of cultural details I may fittingly mention here the important fact that although all the members of the Polypodium family rejoice in moisture, they especially the evergreen kinds, dislike anything approaching to stagnant water around their roots. If such a condition exists, therefore, it must be remedied by supplying ample artificial drainage. The evergreen Polypodiums would mix well with flowering bulbous and other plants that do not require frequent removing, or they might be made to cover bare spaces beneath trees, or to overrun stumps; and what a beautiful effect, too, might be obtained by their use as a carpet or setting for some of the gems of the alpine and rock garden! The evergreen Polypodiums are also very useful for cutting purposes; and no garden, however small or extensive, should be without some good patches of them planted, especially for furnishing a good supply at all seasons, of their persistent and truly beautiful fronds. In THE GARDEN (Dec. 4, 1880), in an article on hardy Ferns, a

list of evergreen Polypodiums is given, and the all kinds therein enumerated are in every way worthy of culture. The deciduous Polypodiums, *P. Dryopteris* (Oak Fern) and *P. Phegopteris* (Beech Fern), are well known to all Fern lovers; they thrive best in a compost of peat, loam, and sharp sand with the addition of some broken lumps of sandstone. They prefer a dry situation, and would do well in the rock garden; indeed, they cannot be out of place in any situation provided it is not fully exposed to the sun. A slightly shaded spot should therefore be selected for them, where they might be planted in conjunction with flowering plants, amenable to the same treatment, and that will afford the needed shelter. *P. Robertsonianum* (Limestone Polypody) is another very beautiful deciduous species, but unfortunately somewhat difficult to manage; it will, however, endure sunshine, and therefore a dry sheltered position should be afforded it. The soil it likes best is a mixture of sandy and fibry loam, with a plentiful mixture added thereto of pounded limestone. As has just been remarked, this Fern is not easily grown, yet its beauty is great, and it is in every way well worth attention. The Alpine Polypody (*Polypodium alpestre*) is a distinct and handsome Fern, bearing a very close resemblance to the Lady Fern (*A. Filix-femina*). Indeed, it is often classed with the *Athyrium*s; the fronds are dark green and handsome, and sometimes exceed 2 ft. in length. It may with advantage be grouped with the Lady Ferns in our gardens, being amenable to similar treatment in all its essential requirements. This kind is found in abundance in the Scotch Highlands, sufficient proof that it bears exposure well. *P. hexagonopterum*, a pretty deciduous exotic species of Polypody, is a native of North America. It is quite hardy in sheltered positions, and produces elegant tapering dark green fronds about 1 ft. in height. H. BAILEY.

— In Mr. Bailey's notes on the *Cystopteris*, one species, and that perhaps the most elegant of this beautiful genus, appears to have been overlooked. I refer to *Cystopteris regia* (alpina), the Alpine Bladder Fern. I have no experience of this Fern grown in the open air, but when under cover in a cool Fernery I have found it the most attractive hardy Fern I have ever cultivated. If it still grows in England I hope it may be long inaccessible to any but true lovers of dwarf Ferns.—HUNTLEY BROOK, *Bury, Lancashire*.

SOWING VERY SMALL SEEDS.

IN sowing the smallest kind of seed my practice is to place in small pots to within an inch of the top rich mould, lightened with silver sand, having first put in plenty of good draining material. Then holding the pot a few seconds under water, I allow what remains of it at the top to percolate through the soil. Then, sprinkling the seed on the surface, I cover the pot with a flat piece of glass large enough to overhang all round. I have a supply of small squares that I keep for this purpose. The pot is then placed on a warm shelf in the greenhouse, and allowed the full benefit of the sun's rays. The glass has the effect of checking evaporation by confining the moisture. Should, however, the heat be excessive, a piece of white paper laid on the glass answers the purpose of a shade. Treated in this way the pots seldom require a second watering before the young plants show themselves; but should it appear that any of them are becoming dry, they should be held in water for a short time nearly up to the rim, and not replaced on the shelf till a sufficient supply of water has been absorbed, as the surface of the mould will indicate.

The seeds of perennials that do not take a long time to germinate should be treated in this way, and I would here caution those who have old seeds supposed to be past germination not to throw them away until they have been tested in this way. Two years ago I got some seed of *Mimulus cupreus* and sowed it in the manner just described; but happening to have by me some small packets of seed sent me by a friend a year or two previously, and which I had by chance lost sight of, I discovered among them a packet of this very sort. Accordingly, when I sowed the new seed in its pot, I kept a segment of the round surface bare, reserving it for my friend's packet, from which I poured a quantity into the vacant space, not expecting that even a single seed would grow, as I had reason to think that it must have been lying about in its paper envelope for three years at least. In the usual time the new seed produced plants in abundance, while the segment remained bare. I kept the glass on, as it was a protection to the seedlings, and would not be in their way for some time. But one morning, about a month after the appearance of the first, I noticed that the segment was beginning to turn green, and in a very few days the mould was completely hidden by the numerous little seedlings that had filled the space purposely allotted to them; and it was from these that plants of the best colours were produced.

I will mention another instance of old seed remaining in the ground longer than new. Four years ago I procured from Mr.

Thompson, of Ipswich, some seed of the *Rubus deliciosus*. What was sown in the March of that year germinated in April of the following year; the remainder of the seed sown after it had been kept a year did not show above the ground for full two years. I have now some seeds of *Clematis coccinea* sown last spring the appearance of which I hope to witness either in this month or the next. I doubt much if anything is gained by stimulating such seeds with bottom heat. They seem as though they liked to take their own time for remaining under ground, and, like the seeds of the common Hawthorn, they are sure to germinate if in a healthy state when placed in the soil. B. S.

THE VIOLET CRESS. (*IONOPSIDIUM ACAULE*.)

ONE of the most interesting plants in many a flower garden in spring is this charming little Portuguese annual, whose dense tufts, not 2 in. high, of violet flowers spring up in all directions where plants of it have existed the previous season, for, like a common weed, it sows itself, thereby possessing all the advantages of a hardy perennial and causing no trouble whatever after being once introduced. Its peculiar beauty adapts it for various purposes



The Violet Cress (*Ionopsidium acaule*).

and positions. On rockeries, associated with even the choicest of alpine plants, it holds its own as regards beauty, and it never overruns or otherwise harms its neighbours. It is particularly suitable for sowing near pathways, rugged steps, or similar positions, places in which it grows freely; indeed, it would even flourish on a hard gravel walk, so freely does it grow. It also makes a pretty plant for the greenhouse or window, as it thrives well in pots, either sown in them or lifted in flakes from the open ground and placed in them. It flowers in a couple of months after sowing and often produces a second crop of blossoms in the autumn. W. G.

Demand for Hardy Flower Roots.—If evidence were wanting of the popularity of hardy flowers, it might be found in the demand for well-established clumps of Hepaticas, single and double Primroses, Gentians, and similar plants for the purpose of subdividing for getting up a stock by the trade, who find great difficulty in meeting the demand with anything like fair-sized plants, from the simple reason that they are difficult to increase rapidly by the ordinary means of propagation; and during the long years of neglect which these lovely plants have undergone, many varieties have only been saved from total loss by being sheltered in cottage, or old-fashioned vicarage, or farmhouse gardens. The stock therefore became so limited, that when the tide turned in their favour, but few nurserymen were prepared to meet the unexpected demand. Unlike the soft-wooded subjects so largely used for several years, that are cuttings one day and rooted plants the next, these hardy flowers must have time; and they resent frequent removals by growing smaller, instead of larger. I find that Hepaticas are especially averse to disturbance at the root, and if one wants to see gorgeous masses of their pink and blue flowers, they must go to cottage gardens, where they have remained undisturbed for years. The same may be said of Christmas Roses and many other plants of a similar character. Primroses need very careful attention when transplanted, for if dry, hot weather ensues, they are soon damaged

beyond reclaiming; and even as a commercial speculation they well repay a little extra attention. They are able to withstand our most severe winters, but droughts and scorching suns are fatal to them.—J. GROOM.

THE FRUIT GARDEN.

ORCHARD HOUSE FRUITS.

The **Apricot** is certainly less amenable to indoor treatment than the Peach and the Nectarine, and there can be no doubt that the best place for it is an open wall with a south aspect, but it is desirable to grow at least a portion under glass free from all vicissitudes of weather, and possibly the best way to accomplish this is to grow them in pots, using soil in all respects similar to what has been recommended for the Peach, and adopting also a similar method as regards the training or formation of the trees. In the case of the Apricot, it is by no means necessary or advisable to retain the trees under glass at all seasons or throughout the entire year. On the contrary, they may be placed with advantage in a suitable situation in the open air soon after the fruit has been gathered. The situation, however, should be such as to afford them shelter, and at the same time the full influence of sun and air, in order to ripen the wood. The pots too should be plunged, and their surfaces properly mulched, and they should be carefully supplied with water, enriched with manurial matter if necessary. The pots should be occasionally moved, or turned quite round in order to give all parts of the trees the benefit of the direct rays of the sun, and also to prevent the roots from leaving to any great extent the pots in which they are growing; care should also be taken to prevent the drainage being in any way impeded. Thus circumstanced, they may be allowed to remain until the leaves have fallen, or, even until the weather becomes severe, when it is advisable to afford them a temporary protection of some kind, such as an open shed facing the north, the roof of which will also prevent the soil in the pots from being unduly saturated with rain, and in the event of very severe frost, the trees, as well as the pots in which they are growing, should have the protection of a portion of dry litter of some sort thrown lightly over them.

The object in keeping Apricot trees thus situated when they might, of course, be at once placed in the orchard house, is to some extent to retard development until the season has become more advanced. The blooming period of trees so treated will generally be found to be at least a fortnight later than that of the same varieties trained upon south walls in the open air. As soon, however, as the flower-buds are about to unfold, the trees should be placed in the orchard house, and in as light and airy a situation as is to be found in the structure, so as to insure as far as possible the setting of the fruit, which in the case of the Apricot under glass is sometimes found to be somewhat difficult. To as far as possible facilitate this desideratum, abundance of air is in all respects essential; still, the trees should on no account be placed in a cold draught.

After the Fruit has become fairly set the trees should be frequently syringed in order to keep the foliage perfectly clean. The Apricot is not particularly liable to the attacks of insects. Possibly the most troublesome is a small green caterpillar, which attacks the young fruit as well as the foliage, and the only effectual remedy for this is careful hand-picking. The fruit is generally produced in clusters, and, being destitute of stalks, early thinning becomes necessary, and should be attended to as soon as the young Apricots are the size of Cob-nuts, or even earlier, provided the thinnings are not required for culinary purposes. Over-cropping should always be carefully avoided if fine fruit is desired, and during the time it is swelling the trees should be well supplied with diluted liquid manure, discontinuing the use of this, however, as soon as symptoms of ripening set in. The varieties are less numerous than these of some other fruits, and all of them are worthy of a place in the orchard house; the best, however, are Hemskirk, Kaisha, Large Early, Musch Musch, St. Ambroise, Shipley's, New Royal, and Moorpark. The last named well-known sort is possibly the best and most useful of all.

The **Cherry** in all its varieties is exceedingly well adapted for orchard house culture, either in pots of suitable size, or planted out in borders or beds, consisting of properly prepared rich loamy soil, and if of a somewhat heavy character, so much the better. But if light, it might have added to it a portion of well pulverised clay. If it is desired to grow the trees in pots, and a well grown Cherry tree in a pot, when in flower, as well as when in fruit, is an exceedingly handsome object, the trees should be firmly potted in well drained pots, and may be made to assume a pyramidal form, or that of a low standard or bush; like the Apricot, they need not

be kept in the house throughout the season, but may be placed in a suitable situation in the open air as soon as the fruit has been gathered. If desired, the fruit will remain for a considerable period upon the trees in good condition after it is quite ripe, an advantage which this fruit possesses over the Peach and Apricot. Trees, however, carrying ripe fruit must be protected with a net or by some other means, as ripe Cherries are an irresistible temptation to hungry blackbirds and other members of the feathered race. Cherries of all kinds are exceedingly subject to the attacks of black fly, and frequent syringings are necessary to clear them from it, as well as occasionally the application of some of the various insecticides, such as diluted Tobacco water, Pooley's Tobacco powder, Gishurst compound, &c., any of which may be successfully used while the fruit is yet in a green or growing condition. But only fumigation with Tobacco is practicable when the fruit is approaching maturity. It is therefore very desirable that the trees should be perfectly clean before this takes place. As regards kinds, a good selection for an orchard house is the following, viz., May Duke, Royal Duke, Archduke, Black Eagle, Black Tartarian, Knight, Early Black, Downton, and Reine Hortense; Belle de Choisy is of a reddish-yellow colour, and fine in flavour; Bigarreau d'Esperen has large fruit of fine quality. The fruit of Bigarreau Monstreux Noir is black and of very large size and fine in flavour; Bigarreau Blanc has also fruit of large size, rosy-white in colour, early and of good quality.

Plums succeed well under glass as orchard house trees, and when grown in that way it is perhaps best to adopt the pot system of culture. They should be potted in soil similar to what has been recommended for the Peach and Apricot, and the plants may also be made to assume the form of low standards, pyramids, or bushes, and it is also advisable to place the trees in the open air when the fruit has been gathered. All varieties of the Plum are exceedingly liable to the attacks of a small bluish-green aphid. It yields, however, to repeated syringing, or to fumigation with Tobacco. The latter should always be resorted to if syringing fails to keep the trees perfectly clean. All varieties of the Plum are found to ripen their fruit in great perfection under glass, but as this can also be accomplished on walls in the open air, it is consequently unnecessary to grow more than a selection of the finest sorts in orchard houses, and as such the following varieties may be confidently named, viz.—Green Gage, Coe's Golden Drop, a kind which comes in later than the Green Gage, and among other fine varieties may be named Kirke's Large Blue, Jefferson's, Washington, Victoria, Reine Claude de Bavay, and Reine Claude Violette.

Pears.—It may perhaps hardly be considered necessary to grow such hardy fruits as the Pear under glass, although, at the same time, it must be admitted that the partial or sometimes the total destruction of the Pear crop by late spring frosts is by no means an unusual occurrence, and it is furthermore found that splendid examples of this fruit can be readily produced in the orchard house, and this, too, can be done without incurring any great amount of trouble. It is even worth while to do so on account of the ornamental appearance which the trees present when bearing a full crop of ripening fruit. Trees intended for this purpose should be grafted on the Quince stock, and their fruiting pots should be some 12 in., more or less, in diameter. They should be firmly potted in good, sound, loamy soil. And it answers to have a good stock of such trees on hand, which should be plunged in a suitable situation in the open border. From this stock plants well furnished with bloom buds should annually be selected and placed in the orchard house a short time before the bloom buds begin to expand. Such trees should not be allowed to carry too heavy crops if fine large fruit be desired, and the plants should have very liberal treatment when the fruit is swelling. If this is attended to, and if the trees are allowed to ripen their fruit under glass, they are almost sure to prove very fine in appearance, but, at the same time, may probably be found to be somewhat deficient in flavour. On this account it may be advisable to remove such trees into a suitable situation in the open air to complete the ripening process. Should this, however, be inconvenient, air should be admitted as freely as possible, both night and day. Ripening Pears are often attacked by the small blue tom-tits or titmouse, a pair (they generally work in couples) of which will in a short time injure, if not entirely destroy, a crop of the finest Pears, whether under glass or in the open air. Nevertheless, the destruction of these birds would be unwise, as well as cruel, for although, as has been shown, they are by no means averse to a fruit diet, they are, generally speaking, insectivorous, and will speedily free a plantation of fruit trees from green fly, the small green caterpillar which infests the Apricot, scale, and various other insect pests, while the ripening Pears may easily be protected from their attacks by placing a circular piece of stiff cardboard, about the size of a crown-piece, upon the stalk of each fruit; this is easily effected by making a hole in the centre of the card large enough to contain the stalk, and then making a clean

cut to the margin. When this has been properly fixed upon the fruit stalk it effectually prevents the birds reaching that part of the fruit they appear to delight in pecking. The following selection is suitable for orchard house culture, viz., Duchesse d'Angoulême, large and of first-rate quality; Beurré Bosc, large and handsome, very prolific, and excellent in quality; Lucy Grieve, an English Pear tree, with narrow Willow-like leaves, fruit handsome and of first-rate quality; Forelle, or Trout Pear, fruit remarkably beautiful, deserving on that account alone to be grown under glass, but in addition to its beauty it is also of nearly first-rate quality; Beurré Diel, fruit handsome and large; and Suffolk Thorn, fruit fine and of first-rate quality. The following six are all of first quality, and are well known varieties, viz., Marie Louise, Winter Nelis, Glou Morceau, Beurré de l'Assomption, Doyenné du Comice, and Madame Treyve. As objects of curiosity such large sorts as Catillac and Uvedale's St. Germain may be grown in the orchard house, and by leaving only a few fruits on each tree and by giving liberal treatment such fruits can be grown to a very large size. P. GRIEVE.

Orchard Street, Bury St. Edmunds.

KENTISH FRUIT GARDENS.

IN these pruning of all kinds of fruit trees and bushes is now in active operation. Filberts and Cob Nuts require very careful pruning; and the majority of growers who do not prune the bushes themselves employ professional tree-cutters at so much per hundred bushes, according to size. They are usually pruned between Christmas and the end of March. All strong wood is cut clean away, and the suckers on the stem and around the base are broken or twisted off, so as to get the heel out entire. This season the harvest of Nuts promises to be abundant. All the centres of the trees or bushes are cut clean away, only shoots that grow outwardly being retained, and by following this up for several years a fine spreading bush is the result. Filberts are quite out of cultivation, and Cob Nuts are taking their place. They succeed on stony ground where the soil is not retentive enough for Black Currants, and in good years are a very profitable crop. The pruning of Gooseberries and Currants is being rapidly pushed on, for although many defer the operation until the bushes are almost ready to burst into leaf, when there are many acres to go over it takes a large staff to get through them in a few weeks, and it is quite time that the digging or forking needed should be completed. Amongst Gooseberries largely grown for gathering green or for ripening on the bush the most popular are Lancashire Lad, in every respect a magnificent fruit; Crown Bob, an old sort; Rifleman, Whitesmith, Bank of England, and Golden Drop. Of Black Currants, the Naples and Lee's Prolific are becoming very popular. These are generally propagated by the growers themselves; at pruning time the best of the cuttings are laid aside and planted in nursery rows about 1 ft. apart, and the following year they are closely headed down to make bushy heads, and transplanted a little wider apart, and the second year they come in for making new plantations. Raspberries are grown in fields without any stakes or trellises; they are cut down to about 2½ ft. from the ground, and are thus stiff enough to stand without support, and produce very fine fruit; only the red sorts are usually grown for market, the old Red Antwerp and Carters' Prolific being very good sorts; Raspberries require richer manure than most other fruits. From the centres of old Apple, Pear, and Plum trees dead wood and weakly sprays are being removed. Younger vigorous trees are having all vigorous growths shortened, and where affected by Moss,

dusted with fresh slaked lime. Any that do not promise to be prolific, or are of doubtful kinds, are being headed down preparatory to being regrafted in April with good kinds, of which scions are now secured and laid in by the heels in a cool damp situation. Damsons and Bullaces, although so common, are highly remunerative, and pay for careful pruning. All the strong growths are being shortened from half to two-thirds their length, the long-handled standard tree pruner being very useful in the case of young slender trees incapable of bearing a ladder, and the secateur, or French shears, are useful for pruning the lower parts. All trees planted during the present winter are not pruned until the following year, but then they are headed down pretty severely to get strong growths for laying the foundation of a large tree.—J. GROOM.

The Phylloxera and Sulphide of Carbon.—By means of a system of drains in which an air-current is set up, M. Bourdon succeeds in impregnating the whole subterranean atmosphere of a Vineyard with sulphide of carbon. The expense of construction is comparatively great, but a considerable economy of the sulphide is realised, together with a more uniform distribution of the antiseptic agent.



STAMINATE AND NON-STAMINATE STRAWBERRY FLOWERS.

AT this season the most common complaint connected with Strawberry forcing is that the blossoms set badly, a mishap alone preventable by every detail of culture receiving full attention from the layering of the runners to the flowering of the plants. What is meant by this is, that whatever tends to check growth, whether it be lack of water or the opposite, a soddened state of the soil, or want of full exposure to sunlight, thus preventing thorough maturity; or, if when that has been assured they are stacked away like so many bricks for the winter, or perhaps left to take their chance and be frozen and thawed as may happen, will, as a rule, result in a large percentage of the flowers presenting the appearance of being staminateless, or at best with stunted stamens destitute of pollen, as shown in the three detached flowers in the annexed cut from *Scribner*. These checks avoided, and the temperature a reasonable one (65°), the flowers when fully expanded will have the vigour and prominent stamens represented in the other portion of the illustration here given, and which cannot fail to set if afforded ventilation for the natural dispersion of the pollen. When the weather is such—harsh winds or a frosty air—that a moderate amount of ventilation cannot be given, a camel's-hair pencil should be used to distribute the pollen, but this should never be done except when the atmospheric air is dry.

H. W.

Oil v. American Blight.—Common train or fish oil has been found to be an effectual remedy for the American blight on Apple

trees without in any degree injuring the latter. It should be applied during winter when the trees are at rest, using for the purpose a soft paint-brush, and care should be taken to avoid injuring the bloom buds. Every portion of the bark, &c., should be painted over, and if this is done one application will generally be found to be sufficient; if not, it should be repeated during the succeeding winter.—P. G.

FRUIT CULTURE FOR PROFIT.

The Pyramid.—This form seems natural to the Pear, and where the soil is deep and suitable, and the trees are worked on the Pear stock, and are not too closely pruned, large trees that will bear immense crops of fruit will in a few years be formed. But where the subsoil is not so well adapted for fruit culture the trees should be grafted on the Quince, and some means employed, as recommended in the case of espaliers, for keeping the roots out of the unfavourable subsoil. The best form of pyramid is the pendulous or weeping, and although the knife should not be rashly or unnecessarily used, yet the trees must not be left to themselves, or they will rush up too fast, and lose their balance. In the selection of the trees those only with a straight central leader should be chosen, and this central leader should be shortened more or less every year to induce it to throw out a sufficient number of side shoots to form the framework of the tree as it proceeds upwards. To give the branches a pendulous habit they should be drawn downwards with strings of matting or twine; the bottom tier might be tied to a wire hoop secured to three small posts driven into the ground at equal distances round the tree; the second tier of branches may be tied to the lower one, and so on as the tree progresses. When the trees bear freely the load of fruit will keep the branches down, and prevent too rapid growth, and to induce an early fruitful habit and check redundancy of growth, after the trees have been planted five or six years, they should be dug up carefully without injuring the roots, and be immediately planted again in the same position, spreading out the roots near the surface and shortening those just a little that are showing a tendency to descend. However, in most cases simply lifting the trees and replanting will be sufficient check to throw them into bearing. Where the soil is of a light, loamy character, it can scarcely be made too firm when the trees are planted if it is dry. The soil under the tree should be trodden firmly, the roots spread carefully out, and some good mellow soil spread over and amongst them. Trees in loose, light soil make long naked roots, instead of those possessing plenty of fibres or feeding points, and if not lifted or root-pruned, they soon become disorganised. The pyramidal is the cheapest kind of tree to plant, and is a form well adapted for those who intend planting a considerable number of trees with a view to profit. The distance to plant them from each other must depend entirely upon the nature of the soil. My ideal of a pyramidal Pear would be 12 ft. high and about 10 ft. in diameter at its base, and everyone that begins any system of culture should form in their minds an imaginary specimen tree, and work in the direction indicated. Trees 12 ft. high should not be less than 12 ft. apart each way, and this would give about 300 trees to the acre, and, if the right kinds were planted, I am convinced the plantation would be a success. If any undergrowth was permitted at all it must be something that required only surface culture after the Pear trees came into a bearing condition. It is a mistake to plant fruit trees, expecting them to be fruitful, and then destroy their chance of producing fertile blossoms by reason of their roots being driven down into the earth by too much spade work. Rather, when the days are long and the sun powerful, scatter a few inches of half-decayed manure over the surface round the trunk of the trees, to encourage the roots to come upwards for food, and so be brought within solar and atmospheric influence, without which no trees can long continue in a healthy, fertile condition. If there is one thing in tree life more wonderful than another, it is the way in which the roots discover and follow up their food. The trees need not be planted more than 6 ft. apart at first, and then, when more space was required, some of them might be lifted and planted elsewhere, leaving them finally 12 ft. apart; or, if they are planted their full distance at starting, other crops may occupy the intermediate spaces, still leaving the soil near the trunks untouched by the spade.

The Palmette Verrier.—To my mind a wall covered with Pear trees, in a healthy, fertile condition, is one of the most

interesting sights in fruit culture, and the intrinsic value of the crop would be considerable. For small or moderate-sized gardens, large spreading trees are not the best or most profitable to plant. If I had a new wall or an unfurnished wall to cover with Pear trees, I should plant the Palmette Verrier. If the wall was less than 10 ft. high, I should purchase them on the Quince, plant 7 ft. apart, and train seven branches from each tree 1 ft. apart. The Palmette Verrier is a combination of the horizontal and the vertical. There is a main central stem, which is led up straight and perpendicular, throwing out a pair of side shoots at the bottom, which are trained horizontally till the outside limit the tree is intended to cover is reached, when they are trained up vertically to the top of the wall. The second pair of branches is originated 1 ft. higher, and is trained horizontally 1 ft. less when they also are led up vertically to the top. The third pair of shoots will originate 1 ft. higher still, and will have still less horizontal training. The form of the tree is simple when once understood. The horizontal projection of the branches before they assume the vertical tends to equalise the sap, and there is no form of training that secures better-balanced trees, or that fills a wall quicker or better, as there are no blank spaces. If the wall is more than 10 ft. high the trees should be worked on the Pear stock, and be planted 9 ft. apart, and be trained with nine branches; but of course those who like may train with a less or a larger number of branches; I am only giving my own ideas upon this, and there is no recognised rule. The branches should not be trained nearer than 1 ft., for one of the greatest mistakes in fruit culture on walls is covetousness, covering the wall too densely with branches, and deceiving ourselves that by so doing we obtain more fruit. When the branches of Pears are trained nearer than 1 ft. they steal each other's light and air, and, in the struggle, long ugly spurs are made that not only have an unsightly appearance, but carry the blossoms away from the shelter of the wall. In a great measure the barrenness of the centre of large old Pear trees is due to over-crowding of the branches; the leaves being small and puny, the buds they support at their base must be weak, and the young wood forming the spurs partakes of the same stunted character, and fruit-bearing ceases, except at the extremities, where less breastwork is made, and where more light can reach the main leaves. When one of those large old spreading Pear trees—grand old trees to look at when the leaves are down, and the branches are laid in with mathematical precision on the face of the wall—attains the age of thirty or forty years, or in some cases less, unless the branches have had space enough, the leaves and buds in the centre of the tree never seem to have force enough in them to produce fertile blossoms; everything, in fact, depends upon the character of the foliage. It would be possible, by an examination of the leaves of a tree, to tell its condition without seeing the tree at all, because none but a healthy tree ever yet produced sound, healthy, properly developed foliage. The Palmette is also suitable for espalier training, and is adapted for nearly all kinds of fruits. But perhaps one of the most profitable and interesting purposes for which the Palmettes could be employed would be to plant them on each side of a long, broad path, and train them over to form a Pear-covered walk. I have seen such Pear-covered arches, and most interesting they are, and the first cost of the trellis would not be more than the same number of square feet of espalier; and this way of growing Pears, or other fruits, seems to me to be making the most of things for the shade in summer, does no injury to other crops.

(To be continued.)

E. HOBDAV.

PRESERVATION OF APPLES AND PEARS.

I NOTICED IN THE GARDEN some time ago a short article on Herr Sorauer's experiments in the keeping of Apples. In a small way I have experimented, too, for many years, and my experience amounts to this, viz.: that of all possible ways there is no better method for Apples than to keep them in bulk, say, in boxes or barrels. I was first made aware of this many years ago. I was leaving my house in Buckinghamshire in the end of September, and among other matters which I had to send away was a corn-bin. I thought it was a pity to send it away empty, so having a particularly fine tree of Apples, which we used to call 'Cats' heads' in the garden, I filled the corn-bin with them, put a little straw on the top, locked it, and started it off. It was placed in my coach-house at Hampton, and there it remained forgotten until some time

after the new year, as I had given up keeping horses and had no need for it. One day, however, I chanced to remember it, and I routed out the corn-bin expecting to find it simply full of rottenness; instead of that, to my great delight, I found the Apples in as prime condition as the day I picked them; they had not wasted a morsel, and there were not half-a-dozen rotten ones among them. After that I kept other Apples in that fashion, notably Wellingtons, and the result was precisely the same, but for precaution I looked them over well now and then to remove any rotten ones. I adopt much the same plan with all my later keeping Apples now, and put them in boxes, and I always have Apples till quite the end of March when all my neighbours have long been cleared out. I find a cold and not too dry air best, just so cold as to avoid frost and not damp enough for anything like mildew. I exclude light rigidly, and if I have to spread my Apples and Pears out, I cover them over with pieces of old carpet. Thus, I find the best results, but it is curious how rapidly they both go off when brought indoors into a warmer temperature. I bring them in for use a peck at a time and one-fourth of them always shrivel or rot. Keeping Pears will not do in a warm atmosphere at all. I have tried Bergamotte d'Esperen, Josephine de Malines, and Knight's Monarch, all late Pears, thinking that the warmer atmosphere would ripen them quicker, but they do not ripen at all; they just shrivel away. Glou Morceau, too, though an earlier Pear, shows just the same result except that it sometimes rots. A cool, not too dry atmosphere is certainly the best with exclusion of light and kept in bulk. I should like to hear something from some experienced cultivator as to the ripening and picking of Pears. That strikes me as a matter not well understood.

FRANCIS FRANCIS.

The Firs, Twickenham.

SEASONABLE WORK.

Strawberries.—Now the sun is gaining power, timely closing for a few hours on bright afternoons will reduce the necessity for hard firing, as a low night temperature is always advisable until the fruit is set. When a sufficient number of the finest berries begin to swell, thin off all side flowers, syringe well, and remove them to a shelf near the glass in a fruiting Pine stove. Feed and syringe well, and when the fruit shows signs of changing colour remove the plants to a warm airy house to finish off. Take in batches of the best kinds at intervals and in sufficient quantity to meet the demand; but if possible avoid placing them in near proximity to Vines or Peaches. If worms have got into the pots, give lime-water and see that they are free from spider and fly. Pay particular attention to plants on exposed shelves in Vineries. Syringe copiously and see that they have an abundance of water at the roots. If once allowed to get dry and the balls part from the sides of the pots, much disappointment will be spared by removing them at once. Follow up the top dressing of late plants and see that they do not want water. Never, perhaps, has a body of dry Oak leaves as a plunging medium done better service than through the past arctic winter, and now they will be equally valuable for protecting the matted balls from the parching influence of bright sun and March winds.

Figs.—When the gross shoots which are likely to rob the weaker ones have been stopped once freedom of growth where space admits will increase the size of the first crop of fruit and render it less liable to drop when the change for ripening takes place, while the judicious thinning of the shoots will let in light and air, without which the fruit on pot trees will not colour well, and a badly coloured Fig is rarely worth eating. As Figs at all times up to the ripening stage delight in liberal moisture, see that theroots are well fed with liquid, and syringe freely twice a day. The past month having been so severe hard firing will have favoured the appearance, if not the spread of red spider, and as this pest is so well protected by the large leaves good syringing and sponging the undersides with soapy water must be closely followed up.

SUCCESSIONS in inside borders will now make rapid progress. If the wood is well ripened the young fruit will be as large as Hazel nuts before the terminal points burst into growth, and when this stage is reached the borders will require mulching with good rotten manure, which should be left loose and open to insure the even passage of water, of which, if well drained, they can hardly receive too much. As growth proceeds allow all terminals having space before them to extend until they reach the extremity of the trellis and encourage spur shoots to take an upward and unrestricted course to the influence of solar heat and light. Late houses having a hot-water pipe for keeping out frost may be encouraged to make growth by watering with warm water, morning syringing and closing with sun heat not later than 3 p.m.

Peaches and Nectarines.—One of the great secrets of Peach forcing consists in the timely and piecemeal performance of every

operation without causing a check to the flow of sap. If thickly set, pay daily attention to the removal of some of the worst placed fruit; disbud and pinch back the strongest shoots either for the purpose of creating spurs which answer very well in early houses or with a view to their ultimate removal. As daylight increases and bright powerful sunshine may be expected, syringe early and thoroughly on fine mornings and ventilate the house as soon as the temperature begins to rise; gradually increase it until the maximum of 65° to 70° is reached, reduce in a similar way, and syringe again after closing. A mean of 55° more or less by night, according to the state of the weather, will suffice until after the fruit is stoned, when a considerable rise particularly by day will be quite safe until the fruit begins to ripen. Large trees confined to internal borders will now take liberal supplies of warm liquid, and the surface roots will derive great benefit from heavy mulchings.

SUCCESSIONS.—The fruit on these has set extremely well with us, and although the trees are very clean, the house has been fumigated, and henceforward good syringing and copious watering will keep them free from fly and spider. Black or brown fly is most difficult to destroy, but timely attention to dipping in a solution of Gishurst or dusting with Tobacco Powder will speedily overcome it. A mean temperature of 5° higher than that recommended for the early house will be safe where established trees have been forced for any length of time. Look well to the borders in late houses, as many fine trees cast their buds through being kept too dry during the winter and early spring.

W. COLEMAN.

WATERTON'S CURE FOR AMERICAN BLIGHT.

IN the following extract from an old magazine (June 9, 1838, Waterton relates his experience as regards killing American blight or "bug," as he calls it, on Apple trees. After trying various unctuous preparations which availed nothing, he says—"The application of the spirit of turpentine killed it at once, and for a few days after it had been applied I was in hopes that its extermination had been effected, but others soon appeared. Despairing of success, I was on the point of quitting the field and leaving the bugs in undisturbed possession of it, when I began to conjecture that I had not gone the right way to work. I reflected that none of my applications could have penetrated sufficiently deep into the curved and knotty sinuosities of the diseased parts, and that on this account there would be a sufficient force of the enemy left alive to recommence its depredations on the first favourable opportunity. Wherefore I concluded that nothing short of the entire destruction of the eggs, the young, and the adults could save the trees from ultimate ruin. Knowing that the bug could not exist if totally deprived of air, I resolved to bury it alive; I effected this by an application at once the most easy and simple that can be imagined. It costs nothing. I mixed clay with water till it was of a consistency that it could be put on the injured parts of the tree, either with a mason's trowel or with a painter's brush. I then applied it to the diseased places of the tree, and it soon smothered every bug. A second coat upon the first filled up every crack which showed its self when the clay had become dry, and this resisted for a sufficient length of time the effects both of sun and rain. The sickly parts now effectually freed from the enemy which had been preying upon their vitals, were placed in a state to be cured by the healing process of Nature; and that Nature has done her duty, my Apple trees amply testify." Allow me to add, that even in this paraffin age, the above, though written nearly forty-three years ago, may be of service; for although the remedy is doubtless well known, yet, on account of its simplicity, it does not receive the credit it deserves. Instead, however, of pure water, I would mix the clay with Tobacco juice and a little soft soap, which would prevent it from cracking. It ought also to be mixed a week before it is used and frequently stirred, which would make it more pliable. For Vines infested by mealy-bug, this composition will be found equally effective. Leave all the bark on except the very loosest, and apply the mixture three or four times before the eyes start. Such plants as Fuchsias are also all the better for a coat of the same material before they are taken into clean houses.

R. S. BELMONT.

Uxbridge.

Wrongly-planned Fruit Houses.—I have been much interested in the discussion that has taken place on this subject, and at present I know not whether to admire most "J. S. W.'s" persistency, that the plan is entirely wrong in principle, or Mr. Prior's equal persistence in the negative, and his candour in allowing "J. S. W." a sight of his Peach shoots, which proved to be, as all practical men would expect when grown under such conditions—

"green and soft." Moreover, the "tops" had been cut off, by which one is obliged to surmise that the said "tops" might tell tales; at least, I fail to see any other reason for their removal. It is a common saying that there are "exceptions to all rules," and that good crops have been known to be obtained by the sectional trellis plan, Messrs. Prior, Baines, and Fish certify to my satisfaction, but that is not the question, which is "How can we with the greatest certainty ensure plentiful crops of fruit?" and 90 per cent. of practical men would at once reply, "By well-matured wood." Well, then, let us so arrange our trees as best to attain this end; and as to which is the best plan there can be no two opinions, but that that is full exposure to the south. The sectional trellis plan should only be adopted where ornamentation is preferable to fruit, or by those who are willing to compound the matter by considering that for ornamentation at least a portion of the fruit should be sacrificed. "More ornamental, but less fruitful," is all that can be said in reference to sectional trellises.—W. W. H.

Scraping Vines.—Beginners in Grape growing should well consider the note on this subject in THE GARDEN (p. 220). I have myself for years dared to be singular in not following such an unnatural practice, and I am glad to know that my example has had its effect on others. The fact is, as "T. B." observes, to unlearn a thing is a difficult task, simply because we are such creatures of fashion and custom, and afraid to entertain or encourage an original thought that might lead us to do anything out of the beaten track. Some years ago a "knowing one" visiting this place observed, "You are late in barking your Vines." I quietly replied, "We never do it," and added that I should as soon think of scraping the bark off Peaches or any other fruit trees as off Vines. "Then depend upon it," said he, "your Vines will always be subject to spider or thrips;" but neither of these have as yet been at all troublesome, and the bark is still left intact, the only dressing they ever have being a painting over with a strong solution of soft soap, more by way of prevention than as a cure for insects, for we are perfectly free from thrips and mealy bug, and though red spider will sometimes endeavour to assert its authority, we make short work with it by increased humidity and high feeding. In corroboration of "T. B.'s" remarks that Vines annually barked never increase in thickness as do those not so treated, I may say that we have here an old Vinery—I suppose nearly 40 years planted—that used to be barked, and other houses, one in particular, planted 9 years ago, not barked, and the stems of the latter are at least treble the thickness of those of the older Vines; such being the fact, it is surely only reasonable to conclude that the practice is injurious, but even if it was not it is unnecessary, and therefore needless work.—W. WILDSMITH, *Hockfield*.

Grape Mrs. Pearson.—In reply to "S." (p. 220) I may say that I have practically tested this Grape to be a free setter, most prolific, and both as regards quality and appearance it stands in the first rank. I class it as an intermediate Grape, as it is neither an early nor a late variety, though of the two I would prefer to plant it in a late house.—W. W. H.

Eptahilo Grape. A Greek Grape, produces as many as seven crops in the year. I read the above surprising statement in a catalogue of Grapes of European origin published in the *Pacific Rural Press*. I can scarcely ask any of your readers to help me to understand it.—J. H.

A SKETCH.

There the most dainty Paradise on ground
Itself doth offer to his sober eye,
In which all pleasures plenteously abound,
And none does other's happiness envy;
The painted flowers, the trees upshooting hie,
The dales for shade, the hills for breathing space,
The trembling groves, the christall running by,
And that which all faire workes doth most agrace,
The art which all that wrought appeared in no place.

One would have thought (so cunningly the rude
And scorned parts were mingled with the fine)
That Nature had for wantonnesse ensude
Art, and that Art at Nature did repine;
So striving each the other to undermine,
Each did the other's worke more beautify;
So differing bothe in wills agreed in fine;
So all agreed, through sweete diversity,
This garden to adorn with all variety.

E. SPENSER, *Faerie Queene*, ii., 12.

THE GARDEN FLORA.

PLATE CCLXXV.—THE SCARLET CLEMATIS. (C. COCCINEA.)

"NATIVE of Texas, growing from 3 ft. to 8 ft., and once confounded with *C. Pitcheri*, but very distinct from that. The flowers are small, $\frac{1}{2}$ in. to 1 in. long, but of a bright scarlet, and in old-established plants very numerous. The plant, though from so far south, has proved perfectly hardy in the vicinity of New York city. The foliage is finer than that of *C. Pitcheri*, and it is not so vigorous a grower; *C. Pitcheri* has, moreover, very dark brownish-purple flowers." So writes Dr. Thurber to us concerning this interesting plant. The same writer speaks as follows of it in the *American Agriculturist*: "When the *Revue Horticole* appeared with a coloured plate of a Clematis with bright scarlet flowers, and called it *C. Pitcheri*, we were not a little astonished. We had long cultivated Pitcher's Clematis, not only for its intrinsic beauty—for as a climber, with its large dark purple solitary flowers, it is a really handsome plant—but because it bore the name of one of the most courteous, genial gentlemen of the 'Old School' (Dr. Zinas Pitcher, until his death the leading physician of Detroit) that it was ever our good fortune to meet. To have a plant thus endeared to us set aside by a new comer bearing the name, however brilliant it might be, was far from pleasant. The correctness of the *Revue Horticole's* plate was called in question by the *Gardeners' Chronicle*, whereupon came THE GARDEN, the editor of which stated that Clematis Pitcheri was scarlet, for he saw the flowers of the first plant imported into Europe. *C. Pitcheri* was originally described by Torrey and Gray in the 'Flora of North America' with 'purple' flowers. We collected in Texas a purple-flowered Clematis which we labelled *C. Pitcheri*, and which passed under the eyes of both Torrey and Gray without any hint that it was not correctly named. Then our specimen in the garden, with its large purple flowers, if it is not *C. Pitcheri*, what is it? Either we were wrong and our European friends right, or *vice versa*, and we looked up the matter. It seems that a scarlet-flowered Clematis was first collected by Dr. James on Long's expedition, and was recorded as *C. Viorna* var. *coccinea*, and has since been regarded as a scarlet variety of the well-known *C. Viorna* until Mr. Buckley came across it and gave it the name of *C. texensis*, though Dr. Engelmann, regarding it as a species, had called it *C. coccinea*. Without going any further into the nomenclature, it appears this scarlet Texan Clematis has somehow reached Europe, and is known in both France and England as *C. Pitcheri*, while it is here known only in the shape of botanical specimens."

Culture and Position.—Very little is as yet known to us here as to the hardiness or vigour of this plant in our climate. Those who possess it are for the most part busily occupied in increasing it in frames or cool houses. It blooms out of doors in the Garden of Plants. It is likely to prove hardy in the milder districts, if not in all. Our plate is from a coloured drawing kindly sent us by Messrs. Woolson, of Passaic, New Jersey, U.S.

SENECIO CRUENTUS.

THE exotic congeners of our common Groundsel are coming to the fore, and amongst them *S. cruentus* is both distinct and effective. It came to me from Mr. Smith, of Newry, who tells me that he raised it from imported seeds. The specimen sent to me was a well-developed one, in a 6-in. pot, nearly 3 ft. in height, and well furnished with fresh green Cineraria-like leaves and blossoms. It was indeed figured under the name of Cineraria Webberiana in THE GARDEN last year. Theseeds were introduced under the name of *Doronicum papyraceum*, but the port of the plant was so distinctly Cineraria-like that I at first thought it one of the old species of that genus. On sending fresh flowers and a leaf to Kew, however, the right name is found to be *Senecio cruentus*, D.C., a near ally of *S. papyraceus*, but differing in having auricled petioles and in other details. It is evidently a plant of free growth, and spring-raised seedlings may even be grown on a sheltered border in the open air during the summer months, and bloom well during January and February if lifted before they become injured by the frost, and potted up for the conservatory. The flowers are very numerous, being of a bright lilac colour and having a purple disc. Like the Cineraria, this plant would no doubt lend itself to seminal variation and improvement at the hands of the florist, and is of especial usefulness as being of a more robust and hardy constitution

than the *Cineraria* itself. Its appearance is eminently stately, and as its lilac-rayed blossoms open in succession it remains a long time in beauty. Its flower-stems, moreover, being much branched afford a supply of flowers in convenient sprays for decorative purposes.

F. W. B.

NEW EVERGREEN OAK. (*QUERCUS BUERGERI*.)

THE evergreen Oaks recently introduced from Japan are, we consider, most valuable acquisitions, as most of them seem to thrive well in our climate, and they fill a gap in point of habit of growth that existed between the common Live Oak of tall growth



New Japanese Oak (*Quercus Buergeri*).

and the dwarfer kinds. Two of the finest Japan Oaks, perfectly hardy in this country, are the Bamboo-leaved Oak (*Quercus bambusæfolia*) and *Q. Buergeri*. The former has been longest in our gardens, it having been brought from the Chekiang Mountains some twenty years ago. It forms a dense habited tree with lance-shaped leaves about 6 in. long of a deep green colour. The largest examples of it we have seen are in Messrs. Veitch & Son's nursery at Coombe Wood. They are about 15 ft. or 20 ft. high, and, owing to their graceful mode of growth, form quite a distinctive feature among a plantation of other trees and shrubs. *Q. Buergeri* is comparatively a recent introduction, and is likewise a beautiful tree, even better than *Q. bambusæfolia*, as its foliage is finer and its habit of growth nobler. It forms a small tree or large shrub of a

spreading habit, and is of free and rapid growth, and perfectly hardy even on the exposed clayey soil at Coombe Wood. Some forms of it differ materially from others as regards outline. One is more pyramidal than the type, hence it has been named *pyramidalis*; another is altogether more vigorous in growth, the leaves broader, and the branches more densely clothed, and this has been called *robusta*. The leaves, as may be seen by our woodcut, which represents a portion drawn from a native specimen, are as large as those of the common Laurel, but they are of a much deeper green and more leathery in texture. For planting in shrubberies with other trees and shrubs it is a conspicuous and highly effective object, though the position in which its true character and beauty are seen to the best advantage is as an isolated specimen on a lawn, sheltered from bleak winds, and where its spreading branches can sweep the turf on all sides.

W. G.

THE INDOOR GARDEN.

CULTURE OF LACHENALIAS.

It is not common to see these pretty spring flowering greenhouse bulbs really well grown. I have paid a good deal of attention to them during the last three or four years, and perhaps a few hints on the subject may be useful to those who have not succeeded well with them. One most important point in their successful culture is, I believe, very generally overlooked, which is, that they require careful watering and a good position till they die down naturally; whereas they are often neglected when their beauty is gone, by being put in some out-of-the-way place, and allowed to die down prematurely. In common with all other bulbs, if the foliage is not fully developed and allowed thoroughly to carry out its functions, weakly bulbs will result, and good flowers cannot be produced in the following year. The next point to be borne in mind is that they must be kept thoroughly dry in their pots after dying down, till the potting season arrives, either on a shelf in the greenhouse, or some other dry place. About the middle or end of August is a good time to start them into growth, and I find it best to repot them every year, separating the offsets, and putting strong bulbs only in the blooming pots. A common error is to put too many in a pot, as they then draw one another up, and require to be supported by sticks; three, or at most four, good bulbs in a 5-in. pot, or single bulbs in 3-in. pots, produce a far better effect than a larger number. The soil I use is, loam two parts, coarse sand two parts, and one part each of peat, leaf-mould, and very rotten cow manure; let this compost be used in a fairly moist state; then plunge the pots in a frame out-of-doors in cinder-ashes, leaving the lights off all day in fine weather, but shutting the frame at night, in case heavy rain should fall; withhold water till the plants begin to move; then water carefully till they are in vigorous growth, when they like a liberal supply; the longer they remain in this position the better, so do not take them into the greenhouse till frost is likely to occur. A succession may be had by keeping back some of the bulbs a month or six weeks before potting them; they will bear a little gentle forcing, so that they may be had in bloom by these various methods for at least three months; the nearer they are placed to the glass the better.

J. G. N.

— Our collection of *Lachenalias* is, unfortunately, a limited one, as far as number of species is concerned, and all the endeavours we have lately made to add to that number have proved fruitless. Yet what we have possess so much beauty, and contribute so largely to the ornamentation of the greenhouse at one of the duller times of the year, that I intend to increase our stock as rapidly as I can, and give to these beautiful plants the attention that they unquestionably deserve. They are so easily cultivated that any one with a cool frame at command might successfully grow them. As soon as they have done flowering they should be placed in such a frame, and as the leaves fade water should be gradually withheld, and the plants allowed to go to rest. About the end of August they may be turned out of the old soil and re-potted into a good strong loam, with a little cow manure added. If the plants have done well they will be found to have produced a number of small offset bulbs, which should be placed together in pots, keeping all the larger bulbs together; press the soil firmly about them, and let them be just below the surface. From eight to ten bulbs in a 6-in. pot will be sufficiently thick.

Plunge the pots in ashes, in a cool frame, and water carefully until the plants have commenced to grow, gradually increasing the quantity of water until they have flowered. A little liquid manure will be found to strengthen them and intensify the colours of the flowers. A light, airy position should be found for them whilst developing their blossoms, a shelf in a cool house being most suitable. These plants have a very beautiful effect when grown in baskets suspended from the roof, the bulbs being placed in the sides as well as on the tops of the baskets. *Lachenalias* are all natives of the Cape, where they occupy a similar position to that taken up by the Bluebells and Squills of Europe, and are as much objects of admiration with the Cape colonists as the nodding Bluebell is with us.

Of the 30 species to which Mr. Baker has reduced the genus *Lachenalia*, the greater part possess little to recommend them to any but the specialist, those of an ornamental character with which I am acquainted being limited to about half-a-dozen true species. Good cultivation, however, has so often produced such marked improvement in plants of, at first, but little beauty, that there seems no reason why the greater part of the *Lachenalias* should not be improved in the same way if persevered with.

The following are some of the most ornamental kinds:—

L. tricolor, according to Mr. Baker, is a very variable species, and one which includes the hitherto considered species *L. aurea*, *L. quadricolor*, and *L. luteola*, thus embracing the kinds which are best known in gardens. The type *L. tricolor* of gardens produces only two leaves, which are about 9 in. long, by $1\frac{1}{2}$ in. in width, gradually narrowing to the tip, and thinly spotted with dark-brown spots. The flower-stem rising from between the leaves, is about 10 in. long, and clothed at the top with from six to eighteen tube-shaped flowers, which are about 1 in. long and of a bright green, red, and yellow colour. The variety *quadricolor* has larger spots on the leaves, and is of a more robust habit than the above. The flowers, too, are larger, and have, in addition to the colours of the type, a touch of deep purple. The varieties *aurea* and *luteola* have bright yellow flowers.

L. pendula.—This species is the finest of all. It is a strong grower and produces from twelve to twenty leaves, which are about 9 in. long and 2 in. wide, and slightly spotted. The flower-stalk rises to a height of 9 in., is stout, and bears from ten to fifteen flowers, which are about 1 in. in length and of a deep purple, red, and yellow colour, hanging gracefully round the stalk much in the manner of the Bluebells.

L. rubida is a two-leaved species, the foliage of which is about 6 in. long and 1 in. wide, lance-shaped, and slightly spotted; flower-stalk 6 in. long, thickly spotted, and bearing about a dozen ruby-red, tube-shaped flowers. The varieties *tigrina* and *punctata* have flowers of a pale ground colour, thickly spotted with deep red.

L. orchoides.—A two-leaved species, the leaves being about 8 in. long and nearly 1 in. wide, thickly spotted with dark brown, the under surface being tinged with red. Flower-stalk 9 in. long, spotted, and bearing from twenty to fifty flowers, which are yellow, red, and bluish in colour.

Z. B.

CHINESE PRIMROSES, HYACINTHS, AND CAMELIAS.

IR "E. B.'s" Primroses (p. 242) are only ordinary seedlings of no special merit, the best advice is not to save them at all, but throw them away as soon as they have done flowering. Old plants are not worth the trouble of preserving, unless they are very superior varieties, as they seldom have the freshness of seedlings sown now and grown on for flowering next winter or spring. Should, however, the varieties be worth saving there are three modes of perpetuating the life of the individual plants. The first and the most simple consists in merely shifting the plants into larger pots, if they require it, soon after they have done flowering. Leave them in the greenhouse or place them in a cold pit till the end of May, when they may be placed on a shady border till the end of September. The pots should be well drained, and be placed on a base of coal ashes, pebbles, or rough gravel. In potting, too, the collar must be kept well up, as this part is very apt to rot in winter if at all buried in or covered with earth. Unless the pots are very full of roots a top dressing may suffice for the plants, the treatment being just the same as if they had been shifted. A second mode of preserving old plants consists in dividing the stem or root-stock into as many parts as their shoots; these range from three to five, or even seven in large plants. Earth

up the old plants with a mixture of two parts sandy peat to one of loam until the compost reaches the leaves; the soil should be pressed firmly round each shoot, these being partly cut through or not before earthing up. If cut a small stone or wedge should be placed in the cut to keep it open. The stems will root into the compost in a few weeks or callus. When this happens shake out the plant, and endeavour to secure a piece of old root as well as new to each division of the top. Pot and plunge in heat until established, and such plants will thrive and flower well. Or the division may be effected without the previous inlaying, dividing the central root stock or stem so as to obtain roots to each separate portion of it. Cuttings proper may be taken off a fortnight or three weeks after the plants have gone out of flower, and the young shoots have started into new growth. Leave 1 in. or so of old wood as a heel, and put each cutting separate in a tiny pot half-full of broken crocks, and finished with pure rough silver sand. Keep rather dry till rooted, and plunge in a bottom heat of 65° to 70° , and as soon as rooted shift into sandy soil as already recommended, return into heat until established in the fresh pots, and gradually harden off in cold frames or cool houses, and grow throughout the summer either in these or in the open air as recommended for the older plants.

Hyacinth Offsets should be prevented from growing, that is rubbed off at potting. They may be placed in boxes of rich soil under glass, or, better still, planted in rich soil out-of-doors till the spring, and in favourable positions will grow into nice patches of floweringbuds. Now they are growing on "E. B.'s" plants it will be better to leave them where they are till the Hyacinths are out of bloom. Then turn the Hyacinths out of the pots and carefully remove the young offsets, and either pot them up into separate pots, using a rich soil of two-thirds loam and one of manure; or plant them out in beds of good soil in a sheltered place. If kept clear of weeds and well watered during the season many of the offsets will flower the next year, and nearly all of them the second year. Such offshoots of Hyacinths come very useful in borders, or for potting up for forcing as cut flowers. They do little injury to the parent bulb, and any little food they steal from it may be made up by frequent waterings of liquid manure, which Hyacinths seem to appreciate very much indeed.

Camellias.—"E. B.'s" last question of, What is the best and quickest way of multiplying Camellias by cuttings? is rather more difficult to answer. The Camellia is seldom successfully rooted by amateurs, though professionals often succeed well. There are two or more modes and lines of rooting. One may be called the slow and sure, the other the fast and less certain. For the first take cuttings of well-ripened wood in September. Shoots of the current year with a heel of older wood make the best cuttings. Insert in sand or sandy compost, making the soil or sand very hard around the cutting. Water home, and leave the cuttings in an open house or the open air to dry. Then place them in a close cold frame or under a hand-light on the floor of a Vinery or other cool house. They will need but little attention or hardly any water even till the spring. About March they will be found callused, if not rooted, and may be potted off. A bottom heat of 60° or so establishes them the sooner and hastens the rooting; but they will do without it. The express way of rooting cuttings proceeds thus: Choose eyes or young wood just started in the spring. The eyes should have a piece of wood left like a Rose bud taken off for budding. Leave the wood in however, and place it in pure sand, leaving merely the tip of the bud out. Cover with a bell-glass, and maintain a temperature of 70° to 75° till the eyes are rooted. The cuttings of young wood must have a heel of the wood of the previous season's growth attached and be treated exactly like eyes until rooted.

D. T. FISH.

— Propagating Hyacinths will never pay anybody in England, although it can very easily be done. The offsets must be left undisturbed until the old bulbs ripen, when all that are sufficiently forward may be broken off and planted out of doors in a border of deep rich sandy soil.—J. D.

Cyclamens from Seed.—In order to grow Cyclamens well and get them to bloom early it is necessary to sow the seed early in the new year. When the young plants are up and showing two leaves prick them out into pots or pans in good soil, made rather firm, and place them in heat. A hot sweet manure pit or frame is a capital place in which to grow them. As the corms or bulbs swell select the largest and pot them singly in 3-in. pots, still keeping them in heat and shifting them on as they require it. In June they may be placed in a cold frame upon ashes, and set close up to the glass. Give air on all suitable occasions, and be sure and shade from the sun when at all powerful. Slightly damp towards evening and close up. The soil which I use is loam and cow manure, or leaf soil, equal parts, and a little silver sand. Keep the bulbs

well up from the soil, or both flowers and foliage will damp off. The largest pots I use are 6-in. When well rooted give weak manure water occasionally, and when in flower they will be benefited by some at every watering. By this plan plants with large beautifully marked foliage and dozens of lovely flowers may be had, and they will continue flowering from October till the following April. Seed sown now will produce good plants, which will bloom early next spring. Those who have not tried the new large flowered varieties should do so; they are really beautiful, and the flowers come true from seed.—H. J. E.

MY WAY WITH CARNATIONS.

On this side of the Atlantic layering Carnations is fortunately obsolete. We learn a good deal from our English cousins, but in Carnation growing we think we beat them. In my young days well do I remember kneeling under a burning sun in the old country and propagating Carnations. Every plant had to be surrounded by its satellites, and as equi-distant as if their positions had been marked out by compasses. Here our propagating houses are, now-a-days, beds set on pipes 6 in. deep and filled up with sand. In September we select our cuttings, cut at or below a joint—some wood making two cuttings; we remove the stronger leaves three-parts down. The sand beaten firm, a straight edge 2 in. wide is placed on it, and a cut made with a thick-backed knife. We insert our cuttings about 1 in. deep and distant so that each leaf just touches. Each row as it is put in is firmed with the back of the hand. When finished, shading is put on, and in from two to three weeks they will be callused. A bottom-heat of 65° is then started, and this, where the sand is fresh and good, will give 100 per cent. of plants. The whole secret of success lies in having new sand and no bottom-heat until callused. A week or two afterwards prick the young plants out in pans 3 in. deep and 2 in. apart; place them in cool houses, stop as they require it, and by April these will make good bushy plants. We plant out in that month generally. Stretching a line on the one end of the ground, a marker with four teeth 1 ft. apart will give us three lines at one marking. We leave an alley 2 ft. wide between every five rows. Keep the plants clean and well pinched back, removing all flowers.

About August we stop pinching and allow buds to form. In September we lift the plants, place them on a hand-barrow, and carry them into the flowering houses, which are generally 100 ft. long and 20 ft. wide. We plant them out in the centre and on side benches. One man plants and two stake; during this operation we paint the glass with whitening, which we allow to remain on for a week. Should it rain we run it over again. For fine blooms we keep our houses at night as near 40° as possible. For Christmas and New Year we force a little, giving 60° at night and from 80° to 90° in the day time with sun-heat. When done with we throw them away, and fill the houses with spring plants. Care must be taken not to water over the top; if so the buds will go blind, particularly in the case of the coloured varieties. I have grown plants in this way 2 ft. through, but they did not flower as well as those 1 ft. through. Cuttings taken off in winter we place in pans and set them in the Camellia house until they have become callused, then we put them in the propagating house, or anywhere where they can get a little bottom-heat. I have taken cuttings that were well broken on the parent plant and found no difficulty in growing them. Although I have heard of such-and-such varieties being hard to strike, I never had any difficulty when my sand was new. Carnations enter largely into our cut flower trade. Our wholesale winter price to bouquet makers is from 1 dol. 50 cents to 2 dols. per 100 blooms. The strongest of our plants we allow to flower in summer, and sell them at 1 dol. per 100. I have counted on Carnation plants before being lifted from 100 to 175 buds. These when housed and in flower have a fine appearance.

GERALD HOWATT.

Essex Co., New Jersey.

SEASONABLE WORK.

Cold Pits.—Many of the plants in cold pits will soon begin to furnish their quota to decorative purposes if *Scillas* and some of the early *Primroses* have not already done so. The great difficulty this winter has been close confinement and stagnant damp from heavy covering, but plants of this class rarely suffer beyond delay if care-

fully ventilated through the sharpest weather and gradually inured to light when the time arrives for uncovering. When mild, *Primulas*, *Auriculas*, *Carnations*, and *Phloxes* should have a turn over in order to clear them of dead leaves, *conferve*, and weeds, as well as to change their position. Keep them near the glass and give plenty of air without producing a cutting current, otherwise the foliage will become drawn and tender, and the flowers of such things as *Primulas* will be deficient in colour and texture. *Carnations*, autumn-sown *Stocks*, alpine *Auriculas*, and *Phloxes* will now require potting into sound rich compost, consisting of good old turf, cow manure, and sand in a dry state and free from worms. *Hollyhocks*, *Pentstemons*, and *Phloxes* if pot-bound may have a shift into pots a size or two larger if the situation does not admit of planting out at once where they can be protected. *Hyacinths*, *Tulips*, and *Narcissus* intended for late flowering do well in shallow pits with plenty of light and air. Keep the glass clean, throw the lights off for a few hours on mild days, and water with clear diluted liquid. Examine the stock of *Lilies* and remove any that are starting into growth to a light pit where they can be protected from frost and the ravages of snails. *Gladioli*, *Montbretias*, *Ixias*, *Tigridias*, and *Tritonias* require similar treatment. Pot up the remainder of the stock of *Tigridias*, also early-flowering *Gladioli*, half a dozen roots in 7-in. pots, and plunge in leaf-mould under glass. W. COLEMAN.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Cutting down an India-rubber Plant (p. 246).—The present is a suitable time to cut an India-rubber plant down, and if the pot containing it be then plunged in a slight bottom heat and the atmospheric temperature not allowed to fall under 60°, the plant will soon form fresh shoots, and as soon as these are some inch or two in length, repot into fresh suitable soil, using possibly a pot of smaller dimensions than that the plant previously occupied. The old stem, if sound, may be split down the centre, and each portion may be further cut into pieces, some inch or more in length, each piece having an undeveloped bud or eye in its centre. A well-drained pot or seed-pan should now be filled with a compost formed of sifted leaf mould and sand, with some quarter of an inch of silver sand upon the surface. Into this the eyes should be gently pressed, and afterwards watered with a fine rosed watering-pot. The pot with its eyes or cuttings should then be placed on bottom heat under a bell or hand-glass. With proper care the eyes will soon strike root, and each will form a shoot, and when well rooted and established, should be potted off singly in small pots.—P. G.

Spring Flowers in Cold Houses.—It seems extraordinary to me that so few take advantage, when they have a little house in which nothing will grow or a single frame, of the ease with which the commonest herbaceous spring plants may be had in bloom a good month before they ordinarily come out in the garden. The process simply consists in literally "sticking them into a pot" just as they are dug out of the earth in autumn and setting them in a greenhouse or frame, no heat being required, only an occasional watering when the pots are not frozen, and out the flowers come even in the middle of January. With *Snowdrops*, *Primroses*, *Wallflowers*, *Polyanthuses*, *London Pride*, *Violets*, *Alyssum*, and a dozen others the plan never fails, and supplies flowers right up to the time when they naturally come out-of-doors.—GROFFLE.

Pyrus Malus floribunda Forced.—In THE GARDEN of the 25th of Dec. last I drew attention to this as a very beautiful hardy tree for lighting up shrubberies, &c., early in summer. I also stated that I thought it would force, and so prove useful in that respect. In order to test it in a off-hand way I had a plant potted up from the open ground, where it had stood three or four years, and placed in an ordinary greenhouse, and for the last fortnight it has been one mass of bloom. Everyone who sees it is struck with it, and wants to know what it is. I think that those who have large conservatories to keep gay during the early months of the year would like to use this if they only knew how freely it flowers, and how easily it can be got into that condition.—R. LLOYD, Brookwood.

Cutting down Pelargoniums (p. 246).—Zonal *Pelargoniums* may be safely cut down early in October and placed in a frame, or cold pit, or even for a time in the open air. But as most of the best varieties are now found to flower so well during winter in the greenhouse or conservatory, the cutting down is generally deferred until the early part of March, when fresh growth is about to recommence, and the wounds necessarily inflicted speedily become healed; whereas if this is done in winter with the plants in a low temperature, and in a more or less languid condition, the process of repair is necessarily slow, and rotting down is almost sure to take place. Should it, however, be necessary to cut such plants

back during the sunless days of winter, the temperature of the structure containing them should for a time be considerably increased until fresh growth fairly commences, when it may be gradually lowered.—P. G.

Daphne indica.—This plant evidently will flourish under very different circumstances, as will be seen by contrasting the way in which it is grown by Mr. Burney (p. 242) and how I have succeeded with it, having it in good health and size. I have three plants, which are planted out in the Camellia border at the back of a large conservatory in peat; here they have plenty of root run, frequent waterings with the Camellias, and little or no sunshine, as the bed is shaded by large plants and climbers; for several years past they have flowered profusely.—W. B.

Calla æthiopica Out-of-doors in Summer.—During the winter and spring this Arum Lily, as it is sometimes called, is a true friend where indoor decoration is extensively carried on, as it may be utilised either with or without its flower spathes, which last a long time in perfection, and the leaves, being smooth, are easily cleaned of dust when used indoors. I find it much the best plan to plant it out-of-doors in summer, on rich, moist, light soil, keeping it well supplied with water at all times, for it is nearly an aquatic. Single crowns are far the best, and, as it throws up numerous offsets, there is no difficulty in keeping up the required quantity. We generally set all plants that are exhausted by flowering under some temporary shelter in May, to gradually harden them off, and by the beginning of June they may be planted out about 1½ ft. apart each way, the strongest-flowering crowns being put together, and weaker offsets planted in beds for furnishing small plants for succession or late spring flowering. During summer keep them free from weeds and water them with liquid manure, and by the end of September they will be dwarf, sturdy plants, with massive stems and leaves of deep green, and the most forward will be showing their flower spathes. They must be very carefully lifted and potted, set in a shady Vinery, and kept syringed overhead until they are recovered from the check of removal, when they may be kept quite cool until required for use. They will readily respond to increased heat, and by introducing a few at a time into the forcing-pit a constant succession may be kept up for several months.—G.

An Amateur's Greenhouse.—In THE GARDEN of last year you inserted a paper by me on this subject in which I gave an account of my own little greenhouse, 20 ft. long, span-roofed, and stated how I managed it; it may be interesting for me to state its condition during the past two months. I have had during that time about a dozen Camellia plants in flower, and during the month of February have been enabled to have four specimen glasses in my drawing-room with their blooms besides those in flower in the house. I have had besides a couple of dozen Cyclamen plants of various shades of colour, Lachenalias, both pendula and tricolor, three plants of Libonia floribunda, Daphne indica rubra, and zonal Pelargoniums of various shades of colour; all these have supplied me with sufficient cut flowers to fill a central vase on my dining-room table, while the greenhouse itself has been quite gay with all these various colours. I had a panful of Scilla sibirica in bloom, but was disappointed with it; even the lovely little Chionodoxa Lucilæ is in flower and some pots of Galanthus Elwesii, while Azaleas are beginning to open their buds. Primulacortusoides amœnalis showing flower, and some of the plants which have bloomed must be taken away to make room for the others. A small plant of Boronia megastigma fills the house with its powerful perfume, and I have had no difficulty in excluding frost, although, as I have said, I have only an old-fashioned flue with drain pipes. I mention all this as an encouragement to those who like myself are obliged to study how to make the most of small means.—DELTA.

Diospyros virginiana Dropping its Flowers.—A friend gave me some five or six years since a fruit stone of this Date Plum. I planted it, and it is now a small tree about 8 ft. in height and apparently in perfect health. It is in a large pot in the Vinery, which is not heated, but from which frost is excluded. Having cut it back several times to prevent its growing too tall for the house, its growth is sturdy and strong. I have, however, never seen the tree elsewhere, and can only judge therefore from its appearance. It blooms freely every year, but after the blossoms have been out some days they one and all drop off. As it will shortly be coming into bloom again I should be glad if I could discover the cause.—W. H. T.

Sambucus racemosa Dropping its Berries.—I have several plants of this Elder in my grounds. They grow luxuriantly, and are covered with bloom every spring. Sometimes the berries are formed, but always either the flowers or the berries soon after their formation all drop off. I fear this is the general experience of this

shrub, and it is much to be regretted, for, as seen in its home in the Alps covered with its brilliant coral-coloured berries in Grape-like bunches, it is one of the handsomest of shrubs. Can any of your readers oblige me with information on this point?—W. H. T.

SHORT NOTES.

Hepaticas.—That is a very interesting note of Mr. Falconer's (p. 233) about Hepaticas and the natural conditions in which these little hardy floral gems are found to thrive. A cool screen of foliage in the summer, abundant light in spring, a good depth of soil and perfect drainage, for be it remarked that they grow on "sloping hillsides," are, it appears, the great important points to be kept in view. Thus growing we are informed that they are "positively evergreen." How seldom do we see them so in cultivation. A friend of mine once remarked, "I should be delighted with Hepaticas if the foliage was not so shabby at flowering time;" and many, I think, hold the notion that this is the natural condition of the plant at that period of the year. It is, however, easy to see that the fault lies with the grower and not with the plant, for I think that Mr. Miles told us that Hepaticas were not evergreen with him until he found out the right way to grow them.

Drainage.—Mr. Peter Henderson goes to the extreme in asserting that no plants, not even Orchids, need drainage. So far as this I am not prepared to go myself, and I doubt whether any practical grower in this country will be found to do so. In our variable climate drainage for pot plants appears to be a necessity, more especially for such plants as have at some time to feel the full weight of our drenching rains. Just fancy a Strawberry plant or a Cape Heath without drainage. In what condition would it be after a fortnight or so of more or less continuous rain? Drainage is, I allow, often carried to too great a length, and the assemblage of crocks considered necessary by some in the case of free growing soft-wooded plants is out of place. The late Mr. Bruce, of Kingston, who grew Heaths well for market used to declaim against over-drainage, saying that he only used an oyster shell for a 4½-in. pot; but I should say that this laid hollow side downwards was about as effective drainage as could have been found. I should like to get a good supply of oyster-shells for this purpose, but since this bivalve has ceased to be the poor man's friend, there is but little chance of doing so. Now-a-days Mr. Bruce would have had to have recourse to a layer of crocks for his Ericas. I was much impressed with a remark made by Mr. Burbidge in a former number of THE GARDEN when writing about Orchids. Mr. Burbidge said that he potted his Orchids so that they could not be overwatered, thereby meaning, as I take it, that he ensured to them such free perfect drainage that there was no danger of stagnant water remaining about the roots. I think it will be found that the most successful of our plant growers consider perfect drainage to be the keystone of success in plant culture; for watering, some of it at least in large establishments, has often to be entrusted to inexperienced hands, and an ill-drained specimen will suffer fearfully from a little overdose of water where one with the drainage in good order will escape with but little damage.

Lombardy Poplar.—Would that I could write more eloquently in praise of the Lombardy Poplar than Mr. Fish and Mr. Marnock have done if by so doing I should induce planters in this country to make free use of it. Few trees have afforded me more unfeigned delight than this, and I wish that everyone could see it as I have done at home, where it exercises a powerful influence upon the landscape. Those who may have worked up the Seine from Havre to Elbeuf will have seen the Lombardy Poplar in all its glory, in its full dignity of growth, and where its characteristic features are brought into the boldest prominence. There amongst the most delightful scenery this tree finds its true place. Here and there, clustered on small islets, the column-like masses of dense dark foliage rise boldly above the water level, sometimes pushing out from amongst a tangled irregular undergrowth, occasionally in close association with various round-headed trees—large Willows, Elms, &c., frequently free and alone, either in groups or as isolated specimens, the huge boles touching down to the water's edge, the somewhat rigid outline being clearly defined against a blue sky, or the white chalk cliffs in the background. Something must of course be allowed for surroundings, which are here of the character best fitted to show off this tree to the best advantage, but are there not many low-lying situations in this country of a similar character, where the free use of the Lombardy Poplar would break up the tameness and uniformity which often prevail there? Our English sylvan scenery, lovely as it always is in its quiet peaceful beauty, is apt to become insipid, owing to the prevalence of trees which naturally throw themselves into rounded-off masses of foliage. The Lombardy, with its erect spire-like growth, bold, rigid, but not too rigid outline, breaks up

this uniformity most happily. The fact of the tree growing with rank vigour in swampy, ill-drained soils is of itself enough to recommend it; and I would therefore endorse Mr. Fish's recommendation, and say to all concerned in planting, don't forget the Lombardy Poplar.

Local Apples.—I should much like to know if your readers generally have any knowledge of Curlytail Pippin and Fletcher's Seedling Apples. Both these varieties, but especially the former, are much grown in this neighbourhood, being, I think, of local origin, and so far as I am aware their culture is mainly confined to this district. The Curlytail I consider to be a truly valuable Apple. It cooks well as soon as ripe, keeps until June, is but little liable to rot, and needs scarcely any sugar when boiled or baked and may be used for dessert. Can I say more in praise of any Apple than this? Yes; I will add that it flourishes in almost any soil, however low and damp it may be, evincing hardly any tendency to canker, grows with great freedom, forming a large spreading tree in a comparatively short space of time, and flowers so late as to escape the spring frosts unless such should come unusually late and severe. Fletcher's Seedling I cannot say so much about, but I know that it is a good cooking kind, is of good appearance, is a sure bearer, for last year it yielded good crops when most of the fashionable kinds failed.

Apple Trees.—Speaking of these, I observe that a writer in the *Bulletin d'Arboriculture* urges the advisability of planting them on raised mounds, and asserts that ample proof has been afforded that trees thus set out make much more rapid progress and enjoy better health in after life than when planted on the level. I know that the peasant farmers and fruit growers of Normandy generally practise this mode of planting, and they appear to be very successful in getting an orchard up quickly. Of course the mound must be well mulched, and a basin must be left around the stem for facilitating the application of water when needful.

Byfleet.

J. CORNHILL.

TREES, SHRUBS, AND WOODLANDS.

PLANTING IN CONNECTION WITH BUILDINGS.

In tree and shrub planting for ornamental effect one of the chief considerations is the arrangement of the various kinds with regard



Spiral trees wrongly placed.

to their form, size, and rate of growth, so that when they have attained maturity they will combine and form a harmonious whole. Too often, planting so as to produce an immediate effect results in an incongruity difficult to remedy or efface after the trees have

become large and well established, an occurrence which could scarcely be otherwise where trees and shrubs varying greatly in rate of growth, as well as in habit, are indiscriminately mixed, often on a space too small for them, and still oftener without due regard being paid to suitability of soil or position; hence it frequently occurs that plantations planted only a few years require re-arranging, and even in some instances re-planting, on account of no attention having been paid at the outset to the points just



Example of effective grouping of spiral and low trees near buildings.

adverted to. Ultimate effects are always prejudged by those who are well acquainted with trees, and it is this knowledge that enables the experienced garden designer to plant in a proper and advantageous manner.

But there is another point connected with planting which requires consideration, viz., the harmonising of trees picturesquely with buildings, a branch of practice which requires to be dealt with skilfully, for even with the same kinds of trees opposite effects are produced, according to the style of building. For example, the two annexed woodcuts show spiral-headed trees in two different aspects. In the one the lofty tower and the trees neutralise each other, owing to their proximity and want of collateral support in the way of round-headed or spreading trees. The other illustration is, on the contrary, a good example of a happy combination of spiral and round-headed trees in connection with a building. In this case the tall trees are not too near the house; therefore they are not dwarfed, and they are agreeably supported and balanced by trees of lower growth of a different habit.

W. GOLDRING.

TRANSPLANTING AND TRIMMING EVER-GREENS.

THE winter has been such as to test the enduring powers of ever-greens to the utmost, and many, I fear, are greatly disfigured and injured, not so much, perhaps, by the action of frost as the wind, which, it will be remembered, blew with such force and was so exceedingly cutting as to hurt the tissues of the leaves and dry up the sap. Not only has the foliage suffered severely, but the bark and young wood are in many places seriously affected, and it remains to be seen whether the parts so defoliated and battered will break again, which can only be decided a month or so hence, and till then, or even later, it will not be wise to do much by way of pruning, unless done with a view to reduce the size of the plants and make them more bushy. In cases where this may be desired, what cutting back or thinning out they require should be done at once, as by carrying it out early, the dormant buds about the main branches are forced to start; whereas if left till a later period, part of the energies of the plants will have become exhausted by the growth they make at the tips. Laurels, both the Portuguese and common, are shrubs that will stand almost any amount of cutting, and it is very seldom they get enough to keep them well furnished to act as screens or blinds, for if trimmed and shortened only at the tips they look stiff and formal and become naked below, but with judicious thinning, to let light in, they are never bare, and always have a pleasing, natural look. Plants faced up like green walls on either side of a walk are very objectionable, as they are out of all character, and it will be found far better to break well into them and do away with the

hedge-like appearance, which may be easily accomplished by the removal of those most crowded, and a little rounding and general shortening-in of the others. The spaces then made will come in well for Lilies, Hollyhocks, or strong-growing herbaceous plants, any or all of which associate with and look at home in the foreground of evergreen shrubs. With regard to the transplanting of these latter, there is no better time in the whole year than the first part of April, as then the earth is daily becoming warmer, and we get genial showers with heavy night dews, so refreshing to languishing leaves when the roots which feed them have met with disturbance. Some planters advocate autumn for the removal of evergreens, and when we get mild winters following the practice may be tolerably successful; but what would be the condition of any so treated after such a season as that we have just passed through, when established plants have been unable to hold their own and battle with the blast? There are some kinds, no doubt, that may be moved with safety at almost any time, except when the young growth is soft and tender, as, for instance, Box, Rhododendrons, and Aucubas, which always have a deal of fibre and lift with large balls; but interfere with a Holly before the March winds are over, and ten chances to one that you kill it. Caught as they are, just bursting their buds, they are sure to grow—that is, if ordinary care is exercised in getting them up, so as to preserve the roots from injury—as they are no sooner in the ground again than they are on the move, and quickly become re-established.

The great point with these, as with others, if of large size, is to see that they are well watered, so as to wash the earth well in around them, and then fill all cavities, which can only be done by throwing on the water with considerable force, and gently swaying the plant to and fro at the same time, when the puddled mixture will draw under and settle the soil, and so fix the ball firm in its bed. The final filling-in of the hole should not be carried out till the day after, which will afford time for the washed earth to subside, when the rest may be shovelled back to its place and made level, after which a heavy mulching should be given, which will be the means of keeping the roots in a uniformly moist condition by preventing evaporation, preserving the soil from cracking, and letting in volumes of air. The importance of mulching to fresh transplanted trees cannot be over-rated, and the absence of it is a more frequent cause of failure than anything else, as without it, water as one will, plants are never so favourably circumstanced, the transition being always sudden and fluctuating between wet and dry. It should be borne in mind, too, that however well a plant may be cared for in the way mentioned, it cannot possibly get a fair start unless securely staked and tied, as every motion of the top causes a strain and movement below, which movement chafes the main roots and prevents the formation of fresh fibres. To keep the heads steady, nothing answers better than stout poles placed triangularly in the ground at a good distance from the plant, and then brought together and made fast to the stem, about two-thirds of the way up, where, to keep them from chafing the bark, pads of hay or any other soft material should be bound, or, in lieu of poles or stakes as supports, galvanised wire may be used after the same manner and secured to stout pegs driven into the soil. This plan of steadying plants is neater than the other, and where appearances have to be considered, as on lawns, should be adopted, as the stays are scarcely seen, and are safe and durable if well fixed at the first.

S. D.

TREE RECORD.

A beautiful weeping tree may be seen on the north side of the town of Bury St. Edmunds on the right hand side of the Fornham Road some 300 yds. from the railway bridge, and about half that distance from the remains of the ancient gateway to St. Saviour's Hospital.

The tree in question is a drooping variety of the Wych Elm (*Ulmus montana*). It stands a few yards from the road, over which it gracefully droops, and a few years since, when the land on which it grows happened to change hands, special stipulation was made to prevent this remarkable tree from being at any time interfered with. A good many years ago two distinct trees stood on this spot, the trunks of which were in such close contact with each other, that they may, and were indeed, supposed to have sprung from one and the same seed. They were very appropriately called The Sisters, as they appeared to have grown up so lovingly together, until a fierce north-eastern gale, one luckless day, prostrated one of them. The Sisters had both been long in the habit of weeping, and the survivor continues to do so still, and is now an exceedingly handsome specimen of a weeping or drooping tree, with very long gracefully slender depending branches, making as straight for the surface of the earth as would a plumb-line.

The bole of this tree is now 18 ft. in circumference at 3 ft. from

the ground. It is about 80 ft. high, and, to judge by its appearance, may be some 200 years old. During the very severe weather which has for some time been experienced, the gracefully drooping shoots of this handsome tree have been frequently heavily incrustated with rime or hoar frost, giving it altogether a remarkable aspect, and rendering it an object of much attention.—P. GRIEVE.

Ancient Cedars.—One of the fine old Cedars of Lebanon which, for more than two centuries, have adorned the gardens here fell during a gale from the north-east on the night of the 6th inst. The length of the tree as it lays, is 72 ft., the breadth 69 ft., the trunk 1 ft. from the ground is 18 ft. 6 in. in circumference, and at 13 ft. from the ground is 15 ft. 4 in. The most singular part is that it has stood so long, the whole of its main roots being as rotten as touchwood and covered with white mould, and, as if struggling for existence, it has pushed out several young fibrous roots close to the butt.—T. WHITE, *Arbury Hall, Nuneaton*.

Fourfold-stemmed Oak.—Amongst the noble trees at Pains Hill, Cobham, Surrey, is a very large Oak which some hundreds of years ago was made a pollard. Wedlake Brayley thus speaks of it in his history of Surrey: "There are some remarkable Oaks in different parts of the grounds at Pains Hill, some having double trunks, and one of a majestic growth is distinguished by a fourfold stem." It is this latter of which I am going to give you a faint description. At 3 ft. from the ground its circumference is 28 ft. 10 in.; at 6 ft. from the ground it divides itself into four branches, the circumference of No. 1 is 15 ft.; No. 2, 12 ft. 6 in.; No. 3, 11 ft.; and No. 4, 8 ft. 6 in. It is not very high, but has a spread of branches of 84 ft. When Mr. Vernon Heath was down here a few years ago, he very much wished to photograph it, but whether he did so or not I am unable to say.—J. CLEMENTS.

The White-flowered Laurustinus.—I can confirm the statement made by your correspondent (p. 189) as to there being a much whiter flowered variety of this shrub than is usually seen in English gardens; both the white and semi-pink varieties are very common here, and are at present in bloom. They differ but slightly in general habit, and both are greatly influenced by position as to their shade of colour and size of foliage; for instance, both varieties are blooming here under the shade of some Spruce Fir trees, where the sun's rays penetrate but little; thus situated, the white-flowered kind is much purer in colour than when fully exposed to the sun, and the other variety is only very slightly marked with the pink tint, and the foliage of both is considerably larger than where they are out in the open. On the other hand, where both varieties are fully exposed to the sun, there exists material differences in the colour of the flowers and size of the foliage. In this position the white variety is of a greenish-white colour, and the other almost pink, and the leaves are also much smaller. The Laurustinus sets its berries freely here, and, owing to their getting carried about by wind and birds, it grows wild in many places. I have no doubt that the pink variety if forced into bloom under glass, and in a shady position, would be quite devoid of the pink tint.—G. RICHARDS, *Cannes*.

GARDEN CATALOGUES.

THERE is no doubt some truth in what has been said in THE GARDEN (p. 209) on this subject. Still, as one quite disinterested, perhaps you will allow me to state that but scant justice is done to many of our modern catalogues, which are daily improving in the amount of information which they afford, alike by pen and pencil; apparent exaggerations even are often not so in reality. Not a few of our florists' flowers, and even fruits and vegetables, when well grown, are really so fine as to make exaggeration well nigh impossible. The writer of the critique in question could hardly have seen the more modern Tomato; no doubt the old red and yellow may pretty well equal in flavour any of their modern rivals, but several of the latter are almost smooth, and free from the ridge and furrow series which made the former wasteful in use or unsightly. It is in Cucumbers, however, in which exaggeration is said to reach its climax.

But I think the critique just alluded to is most widely astray in regard to Melons. These have assuredly been vastly improved of late years; as to flavour, such Melons as the old Beechwood left little to be desired. But then its constitution was tender, and it was miffy and uncertain. The old scarlet Cantaloupes were about the colour of a cooked Swede, and but little better flavoured. Now we have at least a dozen scarlet and green-fleshed Melons equal or superior to the Beechwood in its best state, and with greatly improved constitutions, and a much higher ratio of fertility. Therefore I cannot at all admit that the Melons of to-day are no better than those of olden times, though I am quite sure that had the critic

seen drawings of several houses of Melons that came under my observation last year in any illustrated catalogue, he would have thrown up his hands or his pen, and shouted preposterous exaggeration!

No doubt the modern practice of any one calling vegetables after himself may prove inconvenient at times, but it deceives no one but the most simple; and after all the purchaser may be the gainer if he will only deal with seedsmen of "light and leading;" for men who value their good name are not likely to send out a packet of, say, mixed or mongrel Kale or Cabbages under the name of, say, Sutton's, Carter's, Veitch's, or King's Improved Brussels Sprouts. All such names, and many more in the seed trade, would be accepted as a guarantee and test of quality.

D. T. FISH.

— That article on the catalogues was very much called for. It is not a question of making catalogues better or worse, but of confusing people by needless names. We want real novelty, but it is difficult for the general public to distinguish that in the cloud of new and what one might venture to call false names that are invented. Such names deceive all but the expert. The question of flavour in Melons is a difficult one to make comparisons about; I have no doubt that the Green Flesh Melons in cultivation 20 years ago were, when well grown and well ripened, as finally flavoured as those of to-day. As regards Tomatoes, there is some slight change and one or two useful varieties beyond the old one, but there are also some very coarse large kinds in which one very often finds a nugget of rough stringy matter which is absent in the proper Tomato. As regards another aspect of the question, Mr. David Syme told me a "mot" the other day. Soon after Daniel O'Rourke came out he happened to be in London, and in conversation with the late Mr. Waite, in his office at Holborn, he requested that well known seedsman to tell him the difference between Daniel O'Rourke and Sangster's No. 1. Taking down a list and looking gravely at it, Mr. Waite replied, "The only difference I know of is—8s. per bushel!" The thing is growing to such an evil, that it will have some day or other to be dealt with by strong means, probably legislative ones.

J. H.

THE ROSE GARDEN.

ROSES ON THEIR OWN ROOTS.

ONE cannot help sharing in the regrets of those who have suffered so much loss in standard Roses during the two last winters. The destruction in many places twelve months ago was complete, in others partial, and I hear now of many instances where the plants that were put in last spring to replace the dead ones are again in like manner killed. This second visitation, coming so soon after the first, is very disheartening to the thousands whose gardens have thus been stripped of the most esteemed flower they cultivate. With many of those who grow Roses by the acre for sale in such parts of the kingdom as have come under the destructive influence of the wave of cold, its disastrous effects result in a serious pecuniary loss, still further increased by the all but certain additional loss of Brier stocks intended for the ensuing season's budding. One grower informed me that he lost 25,000 last winter all planted in one place, and if it should turn out that the destruction of stocks is again anything near that of the winter of 1879-80 it will mean a dearth of Roses grown in this way a year or two hence, which will result in doubling the cost, even if at any price the supply will meet the demand. Yet, apart from the sympathy which generally will be felt for those who have lost their Roses, whether grown for pleasure or profit, there is some consolation in reflecting that the lesson taught by the loss will not be without its good effects in doing something to bring this unnatural fashion of Rose growing on stilts into less favour than it has been with the gardening public, for in this, as in other matters of fashion, it is with the public that the matter rests. So long as nine people out of ten who buy Roses will have them in the form of standards, tall or short, so long will that be the way in which those who cultivate for sale will mostly confine themselves to growing them, and so long also will there be from time to time wholesale destruction, such as resulted in the last two winters. Those who approve of this way of growing Roses have long since urged all that can be said in its favour, and when summed up the gain has small weight to stand against the drawbacks, leaving out of the question the absence of elegance in the plants when so grown as compared with their appearance in a more natural form. It cannot be too often repeated that even the Tea varieties when on their own roots scarcely ever suffer in the most exceptionally severe winters further than having their tops killed; when this happens they push again as strongly from the collar as if they had only been cut back; and where simple precautions, incurring no great amount of labour, are taken the loss of the shoots will not often occur. Those

who grow the Hybrid Perpetual sorts on their own roots, even in localities where the frost was most severe, will scarcely see that they have had anything beyond an ordinary winter, and, so far as present appearances go with the now backward condition of the buds, will in all probability have a much finer bloom than if there had been a mild winter with its inevitable premature growth.

In gardening matters, as in many other things, unlearning is a difficult process, and however much a system turns out faulty, if it does not result in uninterrupted failure, people keep to it; but I venture to think that the two last winters will have caused many to pause before they continue planting standards, and if once plants on their own roots are fairly tried few who grow Roses for ordinary purposes will go back to the mop-headed method.

— Since I wrote the above, "S. R. H." has expressed himself fully on the matter of Roses on their own roots in *THE GARDEN* (p. 249). When such an experienced Rose grower and exhibitor as he is throws in his vote unhesitatingly for Roses on their own roots, there is some hope that the time is coming when the thousands who cultivate them simply for the beauty of their flowers will adopt this, the rational mode of growing them, for I think there is little doubt but that the majority of those who see and admire the triumphs of the exhibitor's skill, as displayed in the magnificent boxes of show blooms, not only often make mistakes by selecting indiscriminately for their own growing the winning kinds, many of which are far from the best for ordinary purposes, but are alike led to follow the same method of growing their Roses as they know the successful showmen adopt. But when a successful exhibitor like "S. R. H." speaks out boldly in favour of self-rooted Roses, not alone for general use, but also for exhibition, then there is room to hope that many who have not hitherto given the system a trial will not hesitate to do so. From what I have experienced in different parts of the kingdom with soils, as different as they well could be, I can vouch that for all ordinary purposes, even where the land especially suits, the Dog Rose, (the best free-growing varieties will thrive equally well on their own roots as on the Brier stock, and in light soil they will do better on their own bottoms than on the Manetti; all that is required is a little more time.

T. BARNES.

When may Roses be Unmulched?—Will any of your correspondents give me advice as to when the mulching should be taken from Roses? If it is left on until April, the buds protected by the mulching will have made a good deal of tender growth which will be very difficult to harden off, even if the mulching can be taken away without injuring the shoots. Would it not be better to take the mulching off as soon as the frost breaks, say as soon after the end of January as the state of weather will permit, and when the buds that have been below the mulching will not be induced to break until the weather becomes more genial for them? Many of my Roses have been cut down by the frost quite to the mulching, notably Cheshunt Hybrid, and on examining them on the 26th Feb. I found that very many had started into growth, and I very much fear whether such growth will do any good, and in cases where the frost has only left you a few inches of your trees it is distressing to think that those few inches are ruining themselves by premature growth.—C. H. C.

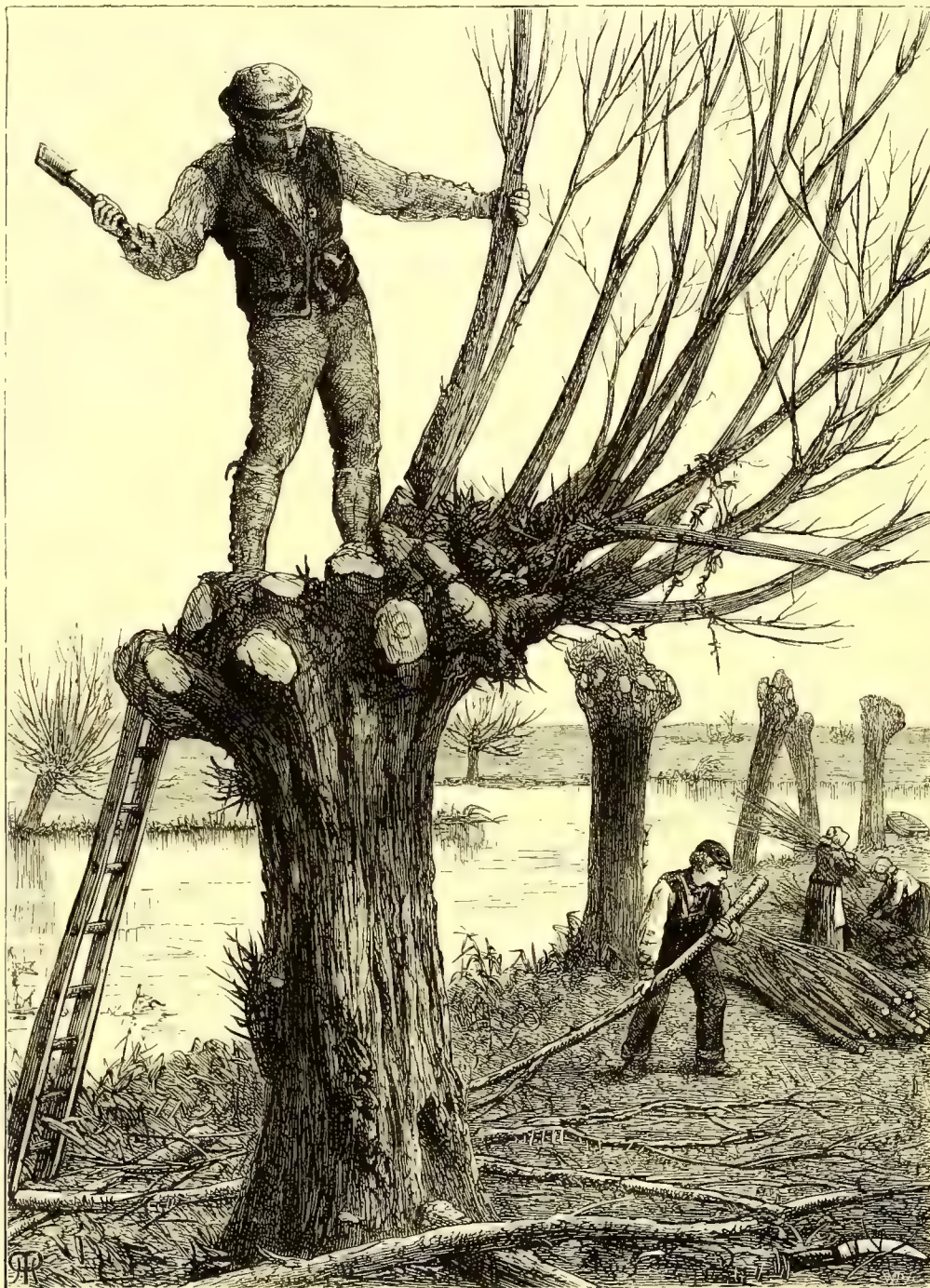
Stock for Marechal Niel.—In answer to "Peregrine's" inquiries (p. 145) for evidence of the durability of Marechal Niel, I may state that there is here one budded on the common Brier about 2 ft. from the ground, and planted in the hard walk 5 ft. from a Peach tree border, and at the west end of a Vinery, close to a rain-water tank, but the roots have no access to the Vine border. At first the stock was budded with Cloth of Gold, about 1864, but this not growing well it was budded again about 1871 with Marechal Niel. This is still in good health, makes moderate growths every year of about 5 ft. or 6 ft., and covers a space of about 10½ square yards, but would have extended farther had room been found for it. It flowers well every year, and the only attention it receives consists in giving it a little manure water, removing a few of the weakest shoots, and disbudding the flowers. The aspect is almost due south. It is still alive, having stood the 31° of frost which we had on one or two occasions this winter, and shows no signs of decay or canker as yet. Plants of Marechal Niel on their own roots in the open air are killed down to the level of the mulching.—J. LAMBERT, *Onslow Hall, Salop.*

The Two Rose Bakers.—Permit me to apologise to both these distinguished Rosarians for my mistake (p. 225). As to the publications in question, I don't think I need apologise. Why should not they apologise to myself and others for having names and purposes so much alike as "Rose Annual" and "Rosarian's Year Book?" But "Delta" has corrected me and shown that it was the latter which had the honour of resuscitating the excretory theory of roots anent the Rose.—D. T. FISH.

POLLARD WILLOWS.

Among the most characteristic objects in our river valleys, such as that of the Thames, and in our rich, well-watered pasture land, such as the district which lies between the Mendip and Quantock Hills, are

of these take root as readily as *Pelargonium* cuttings, and in a few years form trees, which in their turn supply stakes for the next generation. The stake, sawn off straight at the top, usually sends out a crown of shoots, and thus starts at once in its ulti-



Pollarding Willows.

the rows of round-headed Willows which fringe the banks of almost every watercourse. These Pollards begin their life as a simple row of stakes, originally, perhaps, the upright posts of a fence; but the Willow has such extraordinary vitality, that the greater number

mate form, but should young trees or untrimmed boughs be planted, they are sawn off when they have reached the desired height of stem. There are various good reasons for this apparently barbarous treatment of the Willow, which in its natural form is one

of our most beautiful trees. The principal one no doubt is that old Willow timber has very little value; whereas the young boughs which spring from the polled trunk are useful in any state of their development. When young they can be used for basket and wicker-work, though in the districts where the many kinds of Willow are cultivated for that purpose they are grown in beds and the stem cut close to the ground. When older they are much used for rough post and rail fencing and for various other kinds of farm work. While they thus supply useful wood and with their mass of roots strengthen the banks of watercourses, they are not so injurious to the Grass around them as larger and more spreading trees would be. A thickly planted row, when the heads are allowed to grow large, forms also an efficient shelter for rick-yards and serves to break the force of the wind. In Holland and Belgium the long rows of round-headed Willows stretch for miles across the marshy meadows, and are the only objects that arrest the eye on these interminable flats, unless it be a windmill or a church steeple in the misty distance.

The trunks of these Pollard Willows are very interesting studies to the naturalist and the artist, for the young heads often grow upon very old shoulders. The wood in the centre generally decays and makes a favourite nesting ground for birds and for boring caterpillars. Seeds are blown or dropped on the top and send their roots first into this decayed wood, and finally through it into the ground, so that one may often see a large Elder bush, a healthy young Ash tree, a Gooseberry or Currant bush, or a mass of Dog Rose or Bramble springing up among the Willow boughs. The Willow itself will even form roots at the crown and send them down to the soil through its own hollow trunk. In this tangled mass wood pigeons and doves make their slovenly nests and deposit their two white eggs. Under the projecting head, scarred and swollen with the wounds of years, wrens hang their little covered houses, neatly built of the same Moss that covers the trunk. In the rotten wood small woodpeckers and wrynecks make their neat round borings, tenanted in after years by tomtits and other birds, and I have found the nests of sand martins, where there was no available sandbank handy, in the dry tinder-like wood exposed by the splitting of an old Pollard.

The trees represented by the annexed illustration are comparatively young, and the branches which are being lopped are only the growth of five or six years at the most. When older the trunks generally split and lean either towards the water, or away from the direction of the prevailing winds, like the Apple trees in an old orchard. They then become very picturesque, assuming quaint forms and often dividing into two distinct masses. Although the Willow is the commonest of pollard trees, others are also polled for various reasons and uses. The Lombardy Poplar, for instance, when planted as a protection round buildings, is often pollarded in order to prevent danger from its falling, and the Ash and the Wych Elm are pollarded for poles; the knotted heads of this last are also very beautiful for cabinet work. The Mulberry trees in North Italy are pollarded every year; the young shoots and leaves are given as food to the silkworms, and the stems form supports for the Vines, which are festooned from one tree to another down each side of the long patches of Corn or Lentils.

A. P.

MR. DAVID THOMSON ON FLOWER GARDENING.

REFERRING once more to this subject, we notice that the plea of cost which Mr. Thomson urged against hardy plants is best answered by an extract from his own book on the flower garden referring to the mixed system as compared with such bedding as is illustrated by him:—

One of the most weighty arguments in its favour lies in the fact that it is less expensive and less laborious than that which is the fashion now.—“*Flower Gardening*” (D. Thomson), p. 10, last edition.

There is no allusion here to the fact that the mixed style referred to is only one of a number of ways of growing and enjoying garden flowers, and one of the least important. In the same place, however, he speaks of

The vast increase of labour which has arisen in consequence of preparing and cultivating so many tender plants as are demanded by modern flower gardening, and all without anything like corresponding resources in the way of houses and pits for propagating and growing such numbers of plants.

The ideal paradise desired was a village of big glasshouses for the production of tender plants to be put out in summer, so that our author takes himself precisely, in his book, the view as regards cost that he was angry with us for urging.

What he himself thought of the future of flower gardening in those days may be gathered from an article of his own written in the *Scottish Gardener* in the palmy days of his bedding-out at Archerfield. In an article on the future possibilities of flower gardening it

appeared to him then that some of the sections of plants which are used for our borders and parterres will scarcely be susceptible of much further improvement, and as to arrangement, they have been used in almost every conceivable relationship to each other, and it would almost appear as if there were nothing further left to achieve in the matter of arrangement!

Mr. Thomson has so often raised the question of his own doings and practice in relation to hardy plants and their employment—and he has certainly had opportunities such as fall to the lot of few men—that we might ask what he did in that direction in those Archerfield days. Did the famous flower garden at Archerfield contain one single bed of good hardy plants? or was any attempt whatever made to show what could be done with numbers of beautiful subjects to be found among them? Very little indeed; four-fifths of the plants were of the most ordinary kind, making a very fine show, no doubt.

Even the villagers of Dirleton came under the influence of the great bedding movement.

The flower plots, which invariably encircled the cottage, were filled with Geraniums, Calceolarias, Hydrangeas, and the favourite Mignonette, all scenting the air, and spreading their heaven-like influence alike on the inmates and observers.

The writer (in the *Scottish Gardener*) describes the nature of the influence on himself.

Each bed was one mass of bloom; so regular had the plants grown that the entire beds were covered. There were three beds of yellow Calceolarias that I think it was impossible to excel for compactness—not a leaf was seen—nothing save the golden blooms, the bed resembling a large honeycomb. Looking at these beds for a few moments, the eyes became almost of the same colour, and magnified them larger still, until gradually they were relieved by the shrubby habit and purple foliage of the *Perilla nankinensis*, with which the beds were edged.

A photographer was on one occasion employed taking views of it, and after having adjusted his instrument, a gentleman anxious to see the effect before he admitted the rays of the sun put his head under the cloth; it was some time before he could discern it, and all of a sudden, having caught the view on a 4-in. plate, he called out “Oh! oh!” and was completely overcome.

It is not stated if he ever recovered. The affecting incident is related in the *Scottish Gardener* in 1866.

The kind of flower gardening encouraged by our author, until recent years at all events, is as in the following extract from memoranda taken in a famous ducal garden near Edinburgh about the year 1870. The “decoration” was understood to be the same for years before and after: “No. 1 border: Calceolarias, Verbenas, and Lobelias; No. 2 border: Geraniums, Calceolarias, Verbenas, and Alyssum; No. 3 border: Geraniums, Gazanias, Verbenas, and Lobelias; No. 4 border: Geraniums, Purple King Verbenas, and Calceolarias; No. 5 border: Geraniums of sorts, Purple King Verbenas, and Cerastiums; No. 6 border: Geraniums, Calceolarias, Gazanias, Verbenas, Centaureas, Beetroot, Alyssum, and Red Spinach. This last was the “transformation scene” and grand tableau. There were a few neglected Roses in an out-of-the-way corner, the one total representative of hardy gardening on the place; not another plant, save vegetables, was to be seen.”

NOTES OF THE WEEK.

New Camellia C. H. Hovey.—Mr. G. F. Wilson sends us from his garden at Heatherbank, Weybridge, a bloom of this very fine new Camellia, raised by Mr. C. M. Hovey, of Boston, Mass., to whom we are indebted for other fine varieties which have lately found their way into this country. The variety C. H. Hovey is a full-sized flower (4 in. across), with numerous rows of imbricated petals, forming a perfect rosette of a beautiful cerise tint, delicately shaded with violet. The foliage is ample and the plant a vigorous grower.

Begonia Roezli.—This, one of the most beautiful of new Begonias, seems to be but very little known, yet we think it will ultimately prove to be one of the most valuable of all for general cultivation. Judging from plants of it which we saw in Sir Trevor Lawrence's garden, at Burford Lodge, Dorking, the other day, which, in company with *B. suaveolens*, a kind having large clusters of sweet-scented white flowers, and similar plants of the well-known *B. manicata*, formed a group surpassing anything we have ever seen of a similar description, the colours of the three kinds being such as to harmonise beautifully. *B. Roezli*, which is similar in appearance to *B. manicata*, grows from 2 ft. to 4 ft. high, and has large bright green leaves and numerous broad spreading clusters of rather small flowers of a clear cerise tint through which the transparent cells sparkle like crystal. It is somewhat remarkable that such a beautiful plant as this should not have been brought into more prominent notice by nurserymen, but probably it may be now, as we noticed, that Messrs. Laing & Co., Stanstead Park Nurseries, Forest Hill,

exhibited a plant of it at South Kensington last Tuesday, which, however, did not show its true character so well as the fine specimens just alluded to.

Canna iridiflora Ehemanni.—This lovely plant, Mr Green, gardener to Sir George Macleay, Bart., Pendell Court, Bletchingley, showed in fine flowering condition at South Kensington on Tuesday last. It is certainly the finest of all the Cannas, and much superior to the ordinary form of *C. iridiflora*, the flowers being much larger and produced more numerous, and the foliage likewise is more ample. The plant from which this specimen was cut has been in flower over seven months; treated as a sub-aquatic, planted with the crowns 9 in. above water in a warm Nymphæa tank, there they remain, not rested in winter like other Cannas. The plant which is still in flower, has now eight growths 7-ft. high, thus making a fine object either for summer or winter. The flowers shown were not so well coloured as in summer; still their rich carmine hue was very lovely. Under the same treatment as the *Canna* Mr. Green grows the beautiful *Crinum Moorei*, figured in THE GARDEN last week, and it thrives finely under the circumstances.

Narrow-leaved Arabian Coffee Plant.—One of the most interesting exhibits at the meeting at South Kensington on Tuesday last was branches of a variety of *Coffea arabica* named *angustifolia*, bearing fruits in various stages of ripening. Those that were ripe were about the size and shape of a Cob-nut, and of a claret colour. The leaves, which are much narrower than those of the typical form, are deep green and glossy. These were exhibited by Mr. Green, from Sir G. Macleay's garden at Pendell Court, Bletchingley, where the plants are grown, planted out in free soil in a moderately warm house.

Winter-flowering Fuchsias.—Amongst the numbers of hybrid Fuchsias raised during the last few years there are some, the result of crossing *Fuchsia serratifolia* and *F. Dominiana*, a beautiful plant for winter flowering; they are of dwarfer habit and quite distinct in colour from the parents; four kinds have been sent out by M. Lemoine, of Nancy, viz., Charles Darwin, Dr. Gordon, Edouard André, and H. Lecoq; the whole of these, although individually distinct, belong to the same class, and are compact but vigorous-growing sorts, producing freely their showy flowers some 4 in. long, the tube of which is reddish and the corolla bright orange. These, like *F. Dominiana*, are excellent for flowering in winter and spring, and in several collections they are now quite gay with blossom.—H.

Early Rhododendrons.—Amongst shrubs in flower just now I noticed a handsome deep red Rhododendron in a town garden; I cannot name it, but it has a remarkably showy appearance so early in spring. Speaking of these shrubs, I may as well mention that the magnificent avenue of them at Trewidden, Madron, is looking well, and scarcely injured in the least by the past winter; in all probability it will produce an enormous amount of bloom during the latter end of next month.—W. R.

Two Pretty Flowering Shrubs.—Among the few hardy shrubs now in flower, two of the Heath family are very beautiful, viz., *Erica carnea*, or herbacea, which although of dwarf stature is very attractive, being covered with pinkish-red blossoms, with which the pure white flowers of its variety alba contrast charmingly. The other plant is *Andromeda floribunda*, now rapidly opening its pure white Lily of the Valley-like flowers, a desirable plant either when grown out-of-doors or when forced for early decoration, for which purpose it is well adapted.—A.

Iris reticulata is stated to be in bloom under glass at Wimbledon. With us it is already beautifully in bloom out-of-doors, a condition in which it has been since March 3, and I need hardly add it is the first Iris of the season. Many Hellebores are also now in blossom, as is likewise the Snowflake.—F. W. MOORE, *Glasnevin*.

Coprosma lucida.—A large specimen of this handsome New Zealand shrub in the temperate house at Kew has been very showy the whole of the winter on account of the cheerful appearance produced by its berries. The flowers, which are in themselves inconspicuous, are succeeded by fruits about the size of a Currant of a reddish-orange colour and semi-transparent, in that respect somewhat resembling the Mistletoe. It has dark green glossy leaves, longer, but hardly so thick as those of the better known *Coprosma Baueriana*, which up to the present time I have not seen in fruit.—H. P.

Glory of the Snow (*Chionodoxa Lucilæ*).—This charming bulbous plant is used with good effect among other spring flowers for embellishing the conservatory in Sir Trevor Lawrence's garden at Burford Lodge, Dorking. The plants are grown in pots as ordi-

nary bulbs, and produce plentifully their elegant sprays of porcelain blue flowers with pure white centres. Thus grown, this *Chionodoxa* is as early as most of the *Scillas*, none of which are so graceful in appearance or so suitable for cutting purposes.

—This beautiful spring flower opened its bright eyes to the sun of to-day for the first time, I suppose, in this old garden. *Scilla sibirica* looks quite dull and heavy beside it.—B.

Crinum Moorei.—What a fine plate that was of this *Crinum* in THE GARDEN the other day! It exactly represents the plant as it grows out-of-doors; under glass the colour is brighter, especially towards the tips of the segments.—F. W. MOORE, *Botanic Garden, Glasnevin*. [We omitted to state that our plate of this *Crinum* to which Mr. Moore alludes was drawn by Mrs. Miles, of Bingham.]

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MARCH 8.

THIS, the first of the series of spring shows, was a very successful one, the exhibits being numerous and highly interesting. It was held in the conservatory, in which there was a very fine display.

First-class Certificates were awarded to the following:—

To Sir Trevor Lawrence, Burford Lodge, Dorking, for—

Phaius tuberosus, the fine new Orchid recently introduced from Madagascar and fully described in another column.

Messrs. J. Veitch and Sons, Royal Exotic Nursery, Chelsea, for—

Amaryllis John Heal, a variety having remarkably large flowers possessing great substance, breadth of petal, and fine form; in fact, the most perfect flowers as regards symmetry of form that have yet been produced. The colour of the petals is white with a broad band of deep crimson across the middle of each, the centre being of whitish-green, and a decided advance towards obliterating the usually green tint in that quarter.

A. Miss Alice Gair.—Another extremely fine variety, both in size and form. The colour is an intensely rich vermilion-scarlet, the most brilliant yet attained.

A. Royal Standard.—Flowers with broad petals of a rich, deep crimson, conspicuously tipped with pure white, and with a band of white running down the middle of each petal. A very fine variety.

Mr. B. S. Williams, Victoria and Paradise Nursery, Upper Holloway, for—

Imantophyllum miniatum var. Martha Reimers.—A splendid variety, far superior to the ordinary form, being altogether of larger size, more robust, and producing dense umbels of flowers, numbering between two and three dozen on stout erect stalks. It is said to be of hybrid origin, but be this as it may it is a very fine plant, and one that well deserves the distinction accorded to it.

Asplenium Baptisti.—A handsome evergreen Fern from the South Sea Islands. It grows about 1 ft. or so in height, with bipinnate fronds, each division being sharply and deeply toothed.

Mr. James, Redlees, Isleworth, for—

Cineraria Mr. H. Little.—A kind with large and perfectly circular flowers of great substance, produced numerous on stout stems. The colour is quite distinct from that of any other yet raised, and decidedly a new "break," as the flowers have a broad zone of deep velvety maroon on the outside; then a similar zone of rosy-purple, a pure white centre—a combination of colours highly attractive.

Mr. J. Tomkins, Showell Green Nursery, Birmingham, for—

Primula The Queen.—A variety of the Chinese Primrose, having flowers measuring $2\frac{3}{4}$ in. in diameter, and beautifully fringed at the edges; colour not pure white, but rather inclined to a bluish tint; habit of growth robust and the foliage crisped.

Mr. Edmonds, Hillingdon Nursery, Hayes, for—

Cyclamen persicum Miss Lilian Cox and Charming Bride.—Both extremely fine varieties, with pure white flowers, the former dwarfer in habit than the other, but both having large and finely shaped flowers with remarkably broad petals. The foliage too is beautifully mottled.

A magnificent group of Orchids was exhibited by Mr. Spyers, from Sir Trevor Lawrence's garden, at Burford Lodge, Dorking, some of the plants being extremely fine samples of skilful culture. The most conspicuous plant (a large specimen) was *Cymbidium eburneum*, which bore sixteen flowers, quite an exhibition in itself.

Among the *Odontoglossums* shown were the rare *O. Ruckerianum*, similar in appearance to *O. Andersonianum*, but with purple tinged blossoms; *O. nevadense*, also rare and fine; various forms of *O. Alexandræ* and of *O. cirrhosum*, one of the former with sixteen flowers on one spike; *O. Uro-Skinneri*; *O. Rossi majus*, with fourteen flowers; *Miltonia cuneata*, with a dozen flower-spikes; the rare *Oncidium hypnæmaticum*, and many others all extremely fine and well meriting the silver flora medal awarded them.

A gold medal was awarded to Messrs. J. Veitch and Sons, Chelsea, for an extensive group of plants, consisting principally of *Amaryllises* and *Orchids*. The former, numbering about eighty plants, were by themselves arranged in a sloping bank-like group, and their brilliant colours made a grand display. Several new seedlings were included in the group possessing great merit, and there were besides numerous varieties that have been certificated on former occasions. The *Orchids* were mostly cool-house kinds, and these combined with some large plants of *Cyclamen persicum*, forced *Viburnum Opulus*, the lovely white *Rhododendron Veitchi*, the delicate pink *R. Taylori*, and a dwarf *Rhododendron* with purple flowers called *Early Gem*, made altogether a fine display.

Mr. B. S. Williams, Victoria Nurseries, Holloway, was likewise awarded a gold medal for a large and effectively arranged group of plants, consisting principally of *Orchids* and fine foliage plants, together with a group of the new white Chinese Primrose (*Alba magnifica*) which was even better than when last exhibited. The *Orchids*, numbering some eighty plants, represented about forty kinds, the most noteworthy being some grand plants of *Cypripedium villosum* bearing nearly fifty flowers; *Cymbidium eburneum*, a very fine plant of *Masdevallia ignea*, several varieties of *Odontoglossum Alexandræ*, notably *flaveolum* and *roseum*, *Cypripedium Swianum* and *Boxalli*, and the major form of *Cœlogyne ocellata*. The group also included a fine plant of *Azalea Mrs. Gerald Leigh*, a beautiful hybrid variety in the way of *A. amœna*, but with larger flowers and of a rosy-purple shade. A fine example of the pretty Fern *Actinopteris radiata* var. *australis* was also shown, to which was awarded a cultural commendation.

The General Horticultural Company exhibited a choice group of Palms, Ferns, *Dracenas*, *Crotons*, and other fine foliage plants, amongst which were examples of the rare *Æchmea* (*Chevalliera*) *Veitchi*, the handsome yellow-flowered *Tillandsia Saundersiana*, and a pretty new *Dracena* named *Bella*, a kind of dwarf compact growth and narrow arching leaves of various shades of reddish-crimson. A silver flora medal was awarded to this group.

From Mr. W. Paul, Waltham Cross Nurseries, came a large and thoroughly representative collection of *Camellia* blooms all in fine condition, and to which a silver Banksian medal was deservedly awarded. Both old and new varieties were shown, some of the latter, particularly one or two unnamed seedlings, being very fine, though few new kinds surpass such sorts as the old *Alba plena*, *imbricata*, *fimbriata*, &c. *Marchioness of Exeter*, *Countess of Derby*, *Reine des Fleurs*, and some others were shown in unusually good condition.

Some tastefully arranged groups of plants, chiefly spring flowering kinds, were exhibited by Messrs. Osborn and Sons, Fulham, to which a silver medal was awarded, and a similar distinction was accorded to Mr. Aldous, South Kensington, for a group of plants of a like description. A cultural commendation was appropriately voted to Mr. Masson, gardener to Dr. Meadows, Poyle Park, Colnbrook, for a group of ten plants of *Cinerarias*, which were as fine as could be grown, the plants measuring some 2 ft. through, and furnished with large healthy foliage and an abundance of flowers which, though not remarkable for symmetry of form, were large, varied in colour, and consequently made a fine display.

Cyclamens were shown numerously by three exhibitors, viz., Mr. H. B. Smith, Ealing Dean, Mr. Edmonds, Hayes, and Mr. R. Clarke, Twickenham. The collection shewn by the first consisted chiefly of white varieties, for which his nursery is famous. Mr. Clarke showed among his a fine kind named *Princess Dagmar*, with large rosy-tinted blossoms. A variety shown by Mr. Edmonds named Mr. Harry Veitch is an extremely fine sort of large growth, and very floriferous, the blossoms being fine in shape and pure white with a reddish-purple centre.

Double *Cinerarias* were shown by Messrs. R. H. Vertegans, Chad Valley Nurseries, Birmingham; the kinds were *Daisy*, white with purple tipped petals; Mrs. R. H. Vertegans, similar to the preceding, but of a dark tint; Chad Valley Beauty, one of the best in the collection, the flowers being large and a bright bluish-purple; *Ranunculus*, white, flaked with magenta; *Vortigern*, similar to the last, but of a darker colour; Mr. R. H. Vertegans, the finest of all having large compact rosette-like flowers of a bright magenta. In Messrs. Veitch's group there was also a fine double *Cineraria* named Mrs. Thomas Lloyd, a beautiful variety with purplish-crimson flower-heads produced abundantly on stout robust plants.

It is the same kind as was certificated last year when exhibited by the raiser, Mr. R. Greenfield, The Priory Gardens, Warwick, and certainly one of the finest yet produced. Mr. G. F. Wilson exhibited two cut spikes, bearing twenty-nine flowers, of a fine variety of *Odontoglossum Alexandræ*, the produce of one bulb grown in his garden at Heatherbank, Weybridge. A similarly finely grown specimen of *Lycaste Skinneri* was shown by Mr. F. Moore, gardener at Blandon Hall, Bexley. The plant, in a 6-in. pot, bore six crimson-tinged blossoms of large size, large enough to justify the name *giganteum* applied to it. A fine basket of the pretty new Primrose Scott Wilson was shown by Mr. Wm. Paul, Waltham Cross, and a similar basket of mixed sorts of hardy Primroses was exhibited by Mr. R. Dean, Ealing.

Fruit and Vegetables.—These were not numerous or important, except a large collection of Apples, numbering between seventy and eighty kinds, exhibited by Mr. S. Ford, Leonardslee, Horsham. These fruits were all in first-rate condition, accurately named, and the majority fine examples of the respective sorts. Mr. Sage, gardener to Earl Brownlow, Ashridge Park, Berkhamstead, sent a large bunch of ripe Plantain fruits (*Musa Cavendishi*), numbering nearly 240 in the bunch. A cultural commendation was awarded. Mr. Cox, Redleaf, Penshurst, exhibited fruits of Oranges and Lemons grown in Cyprus, both being of large size; a letter of thanks was voted to the exhibitor. Messrs. Cutbush & Son, Highgate, showed samples of Nuneham Park Onion, which were very fine, and well merited a cultural commendation which they received. A similar distinction was voted to Mr. Strachan, Bulwick Park Gardens, Wansford, for fine examples of the Giant Zittau Onion. Mr. McIndoe, Hutton Hall, exhibited a brace of Cucumber Verdant Green, which seems to be an excellent winter variety. Mr. Douglas, Loxford Hall, showed a Black-spined Cucumber, which had been obtained from Tender and True. A cultural commendation was awarded to Mr. Green for fruiting branches of *Coffea arabica angustifolia*, alluded to in another column.

Scientific Committee.—Mr. W. T. Schofield drew attention to a letter he had received from M. Alfred Dumesnil describing a method of growing decorative plants in baskets without soil, but packed in Moss, and apparently with some nutritive fluid, the advantages being that more plants can be grown in a limited space. Such baskets were suspended in the Square Solferino at Rouen. Plants thus treated have been in a flourishing condition for twenty, thirty, and forty days. The plants were Beet, Easter Daisies, Crocuses, Primroses, and Violets. Mr. W. G. Smith exhibited flowering specimens of *Narcissus Tazetta* var. *floribundus*, received from Mr. W. Roberts, Penzance. They were gathered at St. Michael's Mount, Cornwall, where the plant is naturalised. It flowers there in January and February, nearly at the same time as it blooms in the south of Europe, and three months before it flowers in the open air near London. He also exhibited specimens of "Jew's-ears" (*Herniola Auricula Judæ*), a fungus gathered from semi-decayed Elder branches at Ely by Mr. M. Fisher. Mr. Smith also reported on the diseased *Camellia* leaves brought before the committee on Feb. 8. They were from plants of Hovey's *Camellia* forwarded by Mr. G. Duffield, of Winchmore Hill. Mr. Smith considers the disease a Rhytisma, but of unknown species, and hopes to cultivate it to discover its real nature. Mr. MacLachlan reported on the Wheat culms placed in his hands. They appear to be attacked by a chalcis, a parasitical insect, but there seems to be no signs of a dipterous insect, upon which it usually preys, such as *Eurytoma Hordi*. Rev. H. Crewe exhibited specimens of *Galanthus Redoutei*, *Shaylocki*, *virescens*, and a species with yellow ovary and inner perianth which was probably *G. reflexus*. He also showed two species of minute forms of *Narcissus*, possibly minor and minimus, from Pancorba, in the Pyrenees. Mr. G. F. Wilson exhibited some excellent Easter cards, illustrating flowers growing in the neighbourhood of Weybridge. Mr. Pascoe exhibited twigs covered with a species of *Thelephora* from Para, Brazil. Dr. Masters exhibited a specimen of Hazel with an enormous tumour-like excrescence, due to some irritation. He suggested it might have been caused by over pruning. He also exhibited a cone-like gall on *Picea polita*, a Japanese Spruce; a malformed flower of *Eucalyptus*, received from Baron Von Müller, in which the calyx had split into five lobes, possibly in consequence of some injury; and a proliferous form of the common Foxglove, from Dr. Bennett, of Sidney, the corolla from which the bract proceeded being regular. The Hon. and Rev. Mr. Boscawen forwarded *Narcissus triandrus* and a leaf of the Paris Daisy undermined by the larvæ of an insect, apparently dipterous. Mr. MacLachlan remarked that such a tunneling can be distinguished from that of a lepidopterous insect by the excremental matter of the latter being continuous, of the former interrupted. The Rev. G. Henslow (secretary) exhibited a specimen of inoculating Vine stems which had twisted together spirally and united; an Acorn with two embryos, both of which had germi-

nated, producing long radicles; leaves from a Horseradish variously and deeply laciniated, and drew attention to a difference in the formation of the compound leaves of the Blackberry from those of the Raspberry. In the former, the upper pair of leaflets are first separated off from the terminal; then the lower pair are in their turn severed off from the upper pair; but in the Raspberry, the lower pair having been first separated, the upper pair are severed last from the terminal leaflet.

Lecture.—The Rev. George Henslow commenced his lecture by calling attention to the difference between Heaths (*Erica*) and Epacris, and pointed out how these two genera represent one another, the former living at the Cape, the latter in Australia. As other instances of representative plants, he alluded to Aloes (*Aloe*) of South Africa and the America Aloes (*Agave*) of Mexico; as also to the Cacti of Mexico as representing the Euphorbias of Africa, the interpretation being that plants, though widely different in the structure of their flowers, and far apart it may be in their positions in the vegetable kingdom, yet assume an outward physiognomy closely resembling one another, this being, it is supposed, in consequence of similar climatal conditions, which appear to modify their vegetative structure more powerfully than their reproductive. The lecturer then illustrated the principle of compensation, which is of so frequent occurrence in Nature. It signifies that whenever one organ is enlarged another suffers, so that the latter may vanish altogether when the other takes its place. The Guelder Rose illustrated the principle in flowers where the corollas of the barren flowers are much enlarged while the stamens and pistil disappear; and a plant of *Xylophylla* illustrated it in the vegetative organs, for the flowering branches flatten out and so simulate and take on all the functions of leaves. Mr. Henslow then proceeded to describe the structure of flowers with the view of detailing some of the more remarkable features of Orchids, there being a grand display by Sir Trevor Lawrence, Messrs. Veitch, and others. After describing the four floral "whorls," calyx, corolla, stamens, and pistil, and the necessity of fertilising the pistil by the pollen, he alluded to the fact that Nature never binds herself down to a single method of carrying out an object, so that while the corolla is usually the organ most attractive to insects, who convey the pollen from one flower to another, the calyx may be so, as in the Christmas Rose, or the bracts as in *Anthurium*, *Tillandsia*, &c. He then proceeded to describe the chief features of a common Orchis, and pointed out the method of securing its fertilisation by bees, &c. The different methods of *Cattleya*, *Dendrobium*, and, lastly, *Coryanthes* were explained, the latter Orchid having a labellum shaped like a bucket, into which two horn-like glands continually secrete water. Large insects were attracted by sweet excrecences growing out of the labellum, and became apparently somewhat stupefied after eating them, for they pushed one another into the bucket. Their only escape, now their wings were soaked, was by crawling along the bottom and working their way out below the "column" which carried the pollen. The first insect that escaped inevitably bore away the pollen; but in order to fertilise the stigma, it had to repeat the process in another flower, take another bath, and on escaping as before now rubbed the pollen against the stigma and so fertilised the flower.

LATE NOTES AND QUESTIONS.

Camellias and Lime Water.—Can I with safety water Camellias with lime water for the purpose of expelling earth worms, which annoy me very much? If not, what remedy would it be advisable to substitute? Living in a limestone district in which *Rhododendrons*, *Azaleas*, and Camellias languish if loam is used in their cultivation, I am obliged to grow them in peat with a mixture of sand and leaf-mould, which seems to have a peculiar attraction for worms, and through their means the soil soon becomes sour and sodden, unless I have frequent recourse to turning the plants out of their pots, and hand-picking them, which in the growing and bud-swelling season is very injurious. I shall therefore be grateful for information on the subject.—READER.

Black Spine Cucumbers.—What is the best Black Spine Cucumber grown? I want a Cucumber strong and a good fruiter, one that will grow to a good size, be of a good, dark green colour, and black spined, something like Cut-hill's Old Black Spine, but improved, as that was slow in growth and small in size. I do not like the White Spined or Telegraph tribe.—R. J. S., *Clapham*.

Artocarpus Cannoni.—What is the best way to propagate this plant? Some time ago I put in several of them singly in 3-in. pots, and plunged them in a gentle hotbed under handlights, but they have all rotted. Will someone kindly inform me as to the best way of treating it?—C. P. H.

Ficus repens.—Can any of your readers give me the names of any plants that will cling to the walls of either stove or cool house like this valuable climber?—J. M. BURTON, *Highfield, Gainsborough*.

Japanese Rose.—Canon Hole's Japanese Rose, which he wants to identify, is no doubt *R. microphylla* (Roxb.). He will find a figure and description of it just out in *Bot. Mag.*, t. 6548.—J. G. BAKER, *Kew*.

Lapageria Seed.—What is the best way to get *Lapageria* seed to germinate? I have sowed some and have sown it in heat repeatedly, but cannot get it to germinate. It always rots away.—N. M. D.

E. Molyneux.—Your strain of *Cinerarias* is good, but the flowers are not so circular in outline as some we have lately seen; however, the strain is well worth perpetuating, for the colours are rich and varied.

Crinum Macowani.—M. A. W.—This species can be obtained at any of the principal London nurseries. The *Carexes* and *Cyperus* can be procured from nurseries, in which hardy plants are made a speciality.

Fruit Growing in Devonshire.—What is the most suitable part of Devonshire for out-door fruit culture? Are Vineyards still in existence there? and in what part?—POMONA.

Woodlice.—My stove is infested with these insects, and many Orchids and plants have been destroyed by them. What is the best remedy?—H.

Lapageria rosea.—What is the best compost for this?—J. C. T. [*Two parts peat, one loam (both fibry), some leaf-mould, and silver sand.*—G.]

Olea fragrans.—X. X.—Try Messrs. Veitch and Sons, Royal Exotic Nursery, King's Road, Chelsea, W.

Mosses.—P. K.—*Hypnum tamariscinum*, or Proliferous Feather Moss; procurable almost in any wood.

Sun Scorching.—*Ignoramus.*—You may syringe with safety in the morning provided you open the ventilators.—S.

Books.—*Lady Amateur.*—"Orchid Grower's Manual" and "Choice Stove and Greenhouse Plants," published by E. S. Williams, The Nurseries, Upper Holway.

Shading.—D. B. C.—Scrim will probably answer your purpose best.

Notes of Observations of Injurious Insects.—B. [Yes.]

Names of Plants.—*Looker-on.*—*Libonia floribunda.*—X—A pretty form of *Leucojum* (*Erinosema*) *vernum*, with yellow instead of green-tipped segments. —G. F.—1, *Cecylogne cristata*; 2, *Dendrobium nobile.*—*Dunoon.*—It is impossible to name the *Rhododendrons* you send from leaves only, as so many kinds possess similar foliage. Send it again when in flower. It is undoubtedly a native of the Sikkim Himalayas.—J. Poults.—*Sprekella formosissima.*—H. A. M.—The flowers have not reached us.—*Subscriber.*—*Farugium grande* (loamy soil). —*La V.*—*Hotica japonica*; not *Astilbe* or *Spiraea*.

OBITUARY.

MR. W. A. NESFIELD.

MR. WILLIAM ANDREWS NESFIELD died at 3, York Terrace, Regent's Park, on the 2nd inst., in his 88th year. Mr. Nesfield was the son of the late Rev. William Nesfield, rector of Brancepeth, in the county of Durham; he was educated at Winchester and Trinity College, Cambridge, was cadet at Woolwich in 1809, and joined his regiment, the old 95th (now the Rifle Brigade), at San Sebastian, in the Peninsula, and was engaged in the operations in the Pyrenees, and present at the action of St. Jean de Luz. He afterwards exchanged into the 89th, then stationed in Canada, and became junior A.D.C. to Sir Gordon Drummond, and was at the siege of Fort Erie and the defence of Chippewa. On the conclusion of the general peace he retired on half-pay. After leaving the army his taste for painting led him to become one of the earliest members of the old Water Colour Society, of which he was for 30 years an active exhibiting member, his contemporaries and friends being Turner, Copley Fielding, Cox, Prout, and Stanfield. Later, he took up landscape gardening as a profession, which his education as an engineer at Woolwich and his talent as an artist (as quoted in Ruskin's "Modern Painters") well qualified him to fulfil. In this capacity he was constantly consulted in the improvements and alterations of the London parks and Kew Gardens. He planned the Horticultural Gardens at South Kensington and a number of other gardens, his work being mostly a revival of the Dutch and hard early geometrical style of a period when our garden treasures and tree flora were very poor, and when formalism in trees and gardens seemed to please by contrast, perhaps with the wildness of things around, at the time. The gardens on each side of the Palm house at Kew afford good evidence of the utterly unsatisfactory character of this style of gardening, formal to weariness and only potent in preventing vegetation growing or being arranged in any graceful or natural way. The pounded brick and stone notion was also a revival of Mr. Nesfield's. He approached landscape gardening from the artificial side—not as one loving Nature so much that man's garden art should serve her, but rather that the geometry of a past age should form the foreground of what might be the fairest scenes in our garden land and dominate the whole landscape art, and a very artificial one, for its own sake rather than Nature in her wealth, simplicity, and dignity.

Lighting Conservatories.—"An Old Subscriber" asks (p. 220) as to gas for lighting a conservatory. Ritchie's patent gas stove will answer well for this purpose, and also for heating. I have kept over 20° above outside temperature during the recent severe weather with one. It requires neither inlet nor outlet flue, gives off neither smoke nor smell, and is made quite ornamental, while the light from the burner is proved by careful experiment to be nearly 50 per cent. better than that from the same burner used in the open. Messrs. Veitch, who tried one for a fortnight, say: "Not a single leaf or flower was injured, although some plants were for days within 6 in. of the stove."—B. W. WARHURST, 33, *Highgate Road*.

"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

GARDEN THOUGHTS.

"Ina Frenzi," whose foreign-looking name I had no difficulty in translating into English, even before I read her letter, writes: "I wish you would transfersome of your Thoughts from THE GARDEN to the gardener. I do not wish to use strong language, but ours is a brute. He calls my husband master and me mistress, but we are not only his most humble servants, but positively afraid of him. I left the door open the other day of one of his stuffy, steaming little houses, in which you might almost have cooked vegetables, thinking that a little fresh air would be beneficial, and I met him an hour afterwards fuming and grumbling, with a face as long as one of his Cucumbers, and 'did I know that the thermometer was just at freezing point, and that half the plants might have been destroyed?' If I had locked up his new baby in the icehouse he could not have made more ado. We do not understand flowers, and, wishing our children to be better informed, we send them into the garden as much as possible. Would you believe it? He has on more than one occasion turned the darlings out of it. Dear little Evy, who is a very clever boy, and has already a most inquiring mind, collected some long white flowers, like bells, and arranged them quite prettily on a string round the retriever's neck, and he stormed at the child in the most outrageous manner, and called poor dear Sweep a lumbering old cur. He will not even allow the boy to play with the syringe; and when he made himself quite sick the other day with trying to fumigate one of the houses while Mr. Grumble was at dinner, he was told to consider himself very lucky, for that if he had known more of the business he would most likely have been choked on the spot. As for cutting a bouquet in his absence, it seems as though I never could do it without 'spoiling the shape,' 'checking the growth,' 'destroying no end of buds,' &c. When in a kindly spirit I attempted to render some little help by weeding the rockery I was immediately informed that I had exhumed some most valuable plants from Back-house (wherever that may be), and my dear husband was similarly snubbed when raking one of the borders which seemed overgrown with rubbish. If gardeners will grow things which look like weeds of course they must take the consequences. Unfortunately for us, the gardens and houses are always in beautiful order, we have abundance of fruit and vegetables, and I must confess of flowers, but we may not take just what we please. What do you suggest? I know several others who are complaining of the same tyranny, and I believe that, in the height of the season, we might get up an indignation meeting."

What do I suggest? Evy to school, Sweep to the keeper, and the gardener to dismissal, and the very best situation to which I can help him. Indignation meeting! When I think of that (in his own sphere amiable, but in a cultivated garden and in glasshouses particularly objectionable) black dog, with the first, long-expected, precious flowers of *Lapageria alba* round his neck, galloping about in demonstrations of joy; when I think of that syringe, played promiscuously on young and old, in sunshine and in storm; of that fumigator, set a going in the propagating house, and shrivelling the young leaves to tinder; of the ruthless havoc which I have

seen in conservatory, Orchid house, and stove; of the first flowers of some new and rare plant broken off with a long stalk, to be placed in the button-hole of some simpering ignoramus, who did not know a hawk from a hand-saw, an Orchid from an Onion; of long sleeves and large skirts sweeping down the pots; of masterpieces never noticed; of many years' good service without sympathy or encouragement; of the gourmand who expects to have all the delicacies of Covent Garden without paying for them; of the agricultural squire, who sends all the manure to the farm, always believing, "good easy man, full sure," that artful bailiff who tells him that gardeners are never satisfied; of the extravagant demands which are made, especially in times of entertainment, by mistresses for plants, cut flowers, bouquets, and button-holes, by housekeepers for desserts, and by cooks for vegetables—I, too, begin to think of an indignation meeting, at which a large multitude of my suffering brothers might tell the world their woes.

Of course I hear it said, "Your love of a garden makes you think all gardeners perfect. The sight of a baize apron through your rose-coloured spectacles is far more beautiful than the velvets of Genoa or Lyons' costliest silk." But I disclaim any such infatuation; I believe that the gardener has, from his vocation, special advantages to make him genial, intelligent, and high-minded, if he will avail himself of them. That vocation is the oldest, the happiest, the most honourable of all. I was reading the other day in "The English Gardener," a treatise by William Cobbett, late M.P. for Oldham, "of the dispute between the gardeners and the tailors as to the antiquity of their respective callings, the former maintaining that the planting of the garden took place before the sewing of the fig leaves together, and the latter contending that there was no gardening at all till Adam was driven out and compelled to work, but that the sewing was a real and *bonâ fide* act of tailoring;" and I was surprised that such a writer on such a subject did not dispose of the question by stating the simple fact that Adam was a gardener from the first, placed in the garden to dress it and to keep it before the Fall, and so instructing us that work in its felicitous is the companion of innocence, and only in its miseries the consequence of sin.

Associated by this ancient occupation with all that is brightest and sweetest, all things pleasant to the eye, and good for food; and, therefore, having, despite the exceptions to which I have referred, communion and co-operation from cultured minds; living in the pure fresh air and sunshine; the gardener, refined by these influences, is for the most part (I speak from a long and large acquaintance and many a pleasant friendship) of a gentle and thoughtful spirit, having *mens sana in corpore sano*, a tuneful fiddle in a good strong case, a clear conscience and a ruddy cheek; but my admirations are by no means indiscriminate. I suppose that a man may be fond of music without an irrepressible wish to shake hands all round whenever he meets a German band; and while I confidently affirm that the gardener, as a rule, is, from his surroundings, a pleasant and interesting companion, I am painfully aware of many exceptions, of three conspicuously with whom most of my readers have some acquaintance, Messrs. Gawster, Groundsel, and Grunt.

Mr. Gawster has the pride of the peacock without its tail. At least, he has never favoured me with an exposition of plumage which might be termed remarkable. Nevertheless, he assures us that there are no gardens, no houses, no plants, hardy or tender, in Her Majesty's dominions which can vie

with his. He does not exhibit because his people do not wish it, and he has quite enough to do at home; tons of fruit, trucks of vegetables, stacks of flowers to be supplied daily. He finds time, notwithstanding, occasionally to attend the shows, and you will hear his voice above all the rest instructing the exhibitors how to grow and train their specialties, assuring them that by carefully obeying his precepts they may realise, as he has realised, such developments of size and beauty as will astonish all who see. If Mr. G. is in business, he walks about his grounds with a demeanour which at once revives our recollection of Alexander Selkirk, and we almost listen for an utterance of the old familiar lines, "I am monarch," &c. &c. If you go into his office, you cannot help reading, as you are intended to read, in huge black letters upon the white page of an open ledger—

THE MARQUIS OF MULIGATAWNEY, K.C.B.,
MULIGATAWNEY CASTLE,
IRELAND;

and you will presently hear Mr. G. inquiring in a loud voice, from one of his men in a distant packing shed, "whether those cases have been sent off to the Duke of Seven Dials, and those cut flowers to Marlborough House."

Mr. Groundsel is head gardener at the Castle of Indolence, on the banks of the river Idle (not the river of that name in Nottinghamshire), and looking down upon Sleepy Hollow. The stream gets as near stagnation as a stream can in the marshy, boggy ground below, and seems to occupy itself more in exhalations, vapours, and fogs than in any right-minded, earnest efforts to go on with its work towards the sea. Higher up there is the same immobility; moss upon wall and walk, upon the glass above and the pots below; enough of the gardener's namesake to make all the canaries of England sing with joy; all the hinges rusty; not a door which does not resent your ingress or egress by a sound of pain; a sense of drowsiness, an exposition of sleep, comes upon you. This land is some hours in advance of that land in which, according to Tennyson, "it seemed always afternoon;" here it seems always bedtime. Mr. Groundsel's appearance invites repose, and suggests armchairs and sofas. He looks like a railway guard going home after extra duty. He reminds us of our brother "poor Pillicoddy, florist and seedsman," struggling against the influence of Poppies, and continually exclaiming, "Rouse me, Sarah." And yet he is so meek and sleek, inoffensive, comfortable (wants re-potting in fact—I mean re-measuring), so plausible, as he assures you with a yawn, that it is quite impossible to keep such a place in anything like order; that, although you see a lot of lazy fellows loitering about, and helping him to do nothing, you seem to lose any power of protest, and are thankful to escape from the home of the slug and from the voice of the sluggard, lest you should doze into a chronic stupor.

Mr. Grunt seems to be always in that frame of mind which only afflicts ordinary folks when the wind is in the east, when they have been led away by sweets, alcohol, or tobacco, or when their banker takes the liberty of directing their attention to the present state of their account. His life is a prolonged growl. He does a great deal of very good work, but when you praise he snorts at it. If you try to soothe, to ingratiate yourself, by joining in his moans and groans, he will snarl and snap at you like a huge surly retriever of my acquaintance, who, when some young friends of his master returned without their host late from a ball, declined to let them come near the door, and the more they coaxed and addressed him in terms of endearment, "Oh, Tip, you know me, Tip; there's a good

Tippy," the more he showed his long white teeth in the moonlight and got himself into position for a spring.

Perhaps there might be fewer examples of these objectionable types if they who have gardens knew more about them, but this is one of those Garden Thoughts which suggests a series.

S. R. H.

A GARDEN PICTURE.

SOME of our readers may remember our description of a beautiful mixed border made by Mr. Frank Miles in the rectory at Bingham, Notts. We remarked at the time that this was the most successful and beautiful example of a thoroughly well-made border, and on the whole the most artistic that we had seen. Such of our readers interested in the subject who have not had the pleasure of seeing that border will be interested to learn that it is painted, and that a beautiful picture of it may now be seen in Mr. Miles' studio at Tite Street, Chelsea. The difficulty of showing the most beautiful aspect and general expression of this richly-stored garden of changing life is great, and no one will ever expect the picture of a garden to be as good as the garden itself; still, it will serve to show people how beautiful and well-managed a well-filled mixed border may be made. Having described the border before, we need say little now, except that it is distinct from others in being thoroughly well cultivated to begin with; in being well filled with plants in groups and masses, the space around the taller ones in all cases being covered with carpets of dwarfer plants; that little or no bare ground is visible; that the plants are not graded regularly from back to front, but a diversity of surface as well as form is sought; that the borders are backed by a high trellis of hardy climbers and Roses, and here and there a high slender arch of Clematis spans the whole from back to front. The plants are not in lines, and there is no stiffness of any kind. At a time when good examples are rare, and when they are all important in aiding healthy change in our flower gardens, we advise such of our readers who have the opportunity, and who have followed with sympathy our own efforts in this direction, to see this picture, to which they will be freely admitted in the artist's studio during the coming week.

By the way, this reminds us of the question of garden pictures. It is clear that our artists, who follow mainly in certain well-worn paths, have never yet painted beautiful gardens. We trust it may not be so always, for nothing is more worthy of their skill than a beautiful English garden. But the form into which flowers are thrown has hitherto frightened off the artist. No picture can be made of a series of flat rings or a geometrical pattern. The thing and all connected with it is ugly in itself, and can never be made anything else to the end of time. But in true natural and artistic gardening endless real pictures may be found. It would be a great advantage to gardening if this were so, because many beautiful phases of gardening might be seen in the shape of pictures by those who would never see them otherwise. Thus one might teach all the more essential lessons of garden design and beautiful flower gardening through the aid of pictures, which would, moreover, preserve any one beautiful aspect of the spring or summer garden through winter days and careless years for us.

Rhododendrons under Glass.—For conservatory decoration or cut flowers the value of these early flowering kinds can scarcely be over estimated. It is usual in many large places to force a given number every season. But often regard is not enough paid to the sorts selected for the purpose, and very often one sees late blooming kinds used. These, though put into heat early, either refuse to start till they have been in a long time or they have to be put into very strong heat to bring them on; both are disadvantageous, for it destroys their value to force them so rapidly, the colour is not so good, and they do not last so long. This need not be if only suitable kinds are selected for early work, and potted early in the autumn, placing them under cover as soon as frost sets in. These beautiful flowering shrubs may be had in bloom from Christmas till say the end of July. We filled a cold pit full of Rhododendrons and hardy Azaleas, including varieties of *A. mollis*, in October, and Rhododendron *Nobleanum coccineum* was in bloom on March the 1st, while some other sorts had not shown the slightest signs of starting a bud. Under glass the bright scarlet ones are very striking

during the dull months of January and February. When judiciously mixed with other plants of bright red kinds, Nobleanum and its variety called coccineum, altaclerense, and altaclerense coccineum, Wellsianum, limbatum, and Lady Molesworth are good sorts, and by careful treatment they will continue to bloom every year, needing but so little heat to bring them into that condition.—J. C., *Farnborough*.

NOTES OF THE WEEK.

New Bulbous Iris (*I. Kolpakowskyana*).—We have to thank Mr. Stevens, of Grasmere, Byfleet, for the first flowers we have seen of this beautiful new Iris, or more correctly Xiphion. It is somewhat similar to the beautiful *I. reticulata*, but differs in the falls or recurved petals being half white and half of a rich, deep violet-purple, while the narrow, erect petals are purple. The contrast between these colours is very striking, and renders the flowers even more attractive than those of *I. reticulata*, and we hope it will as rapidly become popular as that kind. Like all the Xiphions, it has a bulbous root, and is said to be quite as free in growth as the others. Mr. Stevens also brings us *I. Krelagei*, which only differs from *reticulata* by its more violet colour, but is, on account of its earlier date of flowering, very desirable.

White Laurustinus.—The more we see of this shrub the more are we convinced of its value as a decorative plant in winter and spring, as well as for cutting purposes. As the season advances the flower-heads seem to become whiter, and therefore form a better contrast with the foliage, which, by the way, seems to be of a much deeper hue than that of the common pink-budded kind. It is becoming appreciated about London, a proof of which is afforded by the quantity of it in Messrs. Low's nursery at Clapton, in fine flowering condition.

Acacia longifolia magnifica.—The finest of the numerous forms of the variable *Acacia longifolia* is this one which is a freer flowerer than the type, and the dense clusters of stamens are larger, and the colour brighter. It is grown largely by Messrs. Lee & Son at their Wood Lane Nursery, Isleworth, where we saw it in flower the other day. It is a matter of regret that these beautiful hard-wooded plants are not more appreciated than they are, for in this nursery, and also in several others, the number of kinds grown, compared with the number grown years ago, has greatly diminished. It is interesting to observe the effects of the late winter on a portion of the stock that had been wintered in unheated pits; some are killed outright, others damaged, while some, chiefly those with the hardest wood, have been scarcely injured.

Nuttallia cerasiformis.—This is a pretty spring-flowering shrub, having a compact, bushy habit of growth. The flowers are white, produced in drooping racemes similar to those of the flowering Currant (*Ribes sanguineum*), which it likewise resembles in the perfume of the flowers. The bright emerald-green of the unfolding leaves about the time the flowers are fully expanded makes a pleasing contrast, and renders it a very pretty object on a lawn or in a shrubbery. Some flowering sprays were lately sent us by Mr. Stevens, who grows it finely in his garden at Byfleet, from which he also brings several other flowers, and among them the neat-flowering *Andromeda calyculata nana*; *Lonicera fragrantissima*, a very sweet-scented shrub; *Pulmonaria mollis*, Cornus Mas, the charming little *Erica carnea*, and several other spring flowering plants.

Spring Flowers at Glasnevin.—*Arabis alba*, *Aubrietia grandiflora*, and *Iris reticulata* some time ago performed their annual function of heralding in the spring flowers; these once announced, and assisted by some splendid weather, are coming into blossom so quickly that one has hardly time to note them all. The many varieties of *Crocus* were followed by the *Hellebores*, and next in order came the *Squills*, just in time to say "good-bye" to the last blooms of the Winter Aconite, and finishing up we have the first *Narcissus* of the season, *N. minor*, opening on March 9. There are fifteen species and varieties of *Hellebores* now in bloom, some of which require more than a passing mention. Of the red tinted varieties the best is a German hybrid, *H. J. Heinneman*, very good in the bud state, as well as in the expanded flower. Next follows *H. orientalis* Dr. Moore; a clump of this plant, which has been undisturbed for years, is very beautiful; the colour is so soft and yet so distinct that the variety well deserves all the praise bestowed on it by Mr. Barr, to whom our collection is so largely indebted. *H. kamschatkensis* is better in colour, but otherwise very like *H. atrobubens*; flowering about the same time, they both deserve places even in the most select collections. *H. cupreus* is an improvement on *H. purpurascens*. Of the white or whitish varieties, *H. niger maximus* in the young state with difficulty wrests first place from *H. olympicus* and *H. antiquorum*. Another good plant was for a

long time grown here under the name of *H. abchasicus*, but has now toned down to *H. olympicus* major. *H. odoratus* grows after one fashion and *H. foetidus* after another, and, according to the taste of the grower, the first place in the green-flowering section will fall to either of these, although not without competition, as *H. pallidus*, *H. graveolens*, and *H. intermedius* are worthy competitors. For blue colours we turn to the *Squills*, and find *Scilla sibirica* deeper tinted than *S. bifolia*, though the latter is more floriferous. Two varieties of *S. bifolia* are very good—*S. bifolia alba* and *S. bifolia maxima*; the latter is still rather scarce, but is far better than the type, and certainly will become a great favourite. *Rhododendron præcox* is quite covered with its pretty blossoms, and very attractive it looks, paling down, however, before the brilliant colour of *R. barbatum*, which in Ireland is quite hardy, and the first of all the large *Rhododendrons* to open. It has now been in bloom quite a week. *Saxifraga oppositifolia* major is lovely. In colour, size, and number of flowers it is certainly an advance on the type, and is, to my perhaps prejudiced mind, the belle of all spring flowers. The following were in flower on the 10th inst., viz.:

<i>Andromeda floribunda</i>	<i>Helleborus odoratus</i>	<i>Primula acaulis</i> and vars.
<i>Arabis blepharophylla</i>	<i>graveolens</i>	<i>erosa</i>
<i>Corydalis bracteata</i>	<i>purpurascens</i>	<i>cashmeriana</i>
<i>Ledebouriana</i>	<i>F. J. Heinneman</i>	<i>Pulmonaria grandiflora</i>
<i>Kolpakowskyana</i>	<i>intermedius</i>	<i>Rhododendron præcox</i>
<i>Chionodoxa Forbesi</i>	<i>olympicus</i>	<i>barbatum</i>
<i>Draba hispanica</i>	<i>major</i>	<i>Saxifraga oppositifolia</i>
<i>cuspidata</i>	<i>cupreus</i>	<i>alba</i>
<i>Crocus tricus</i>	<i>kamschatkensis</i>	<i>major</i>
<i>nivalis</i>	<i>niger maximus</i>	<i>juniperina</i>
<i>vernus</i>	<i>foetidus</i>	<i>crassifolia</i>
<i>albiflorus</i>	<i>Hepatica Mauve Queen</i>	<i>Bursleriana</i>
<i>Erica carnea</i>	<i>triloba fl.-pl.</i>	<i>Rocheliana</i>
<i>var. alba</i>	<i>t. alba</i>	<i>hispida</i>
<i>Helleborus</i>	<i>angulosa</i>	<i>Scilla sibirica</i>
<i>Dr. Moore</i>	<i>Narcissus minor</i>	<i>bifolia</i>
<i>pallidus</i>	<i>exiguus</i>	<i>alba</i>
<i>atrobubens</i>	<i>Orobis vernus</i>	<i>maxima</i>
<i>antiquorum</i>	<i>Omphalodes verna</i>	<i>Hohenackeri</i>

and a variety of others already alluded to in your preceding numbers.—F. M.

New Corydalis (*C. Ledebouriana*).—Flowers of this fine new hardy plant have been sent to us by Mr. Moore, Botanic Garden, Glasnevin. It is quite distinct from any cultivated kind with which we are acquainted, the leaves being of a pale glaucous green, and divided into several rounded divisions; the flowers, which are nearly 1 in. long, are half a deep claret colour, and half (the spur) a pale pink. It is a very desirable plant, especially on account of its blooming in the open air in company with the earliest spring flowers. Another new kind also was sent, viz., *C. Kolpakowskyana*, which has more finely-divided foliage than the last, and pale pink flowers; therefore not nearly so pretty.

Spring Flowers at Tottenham.—Mr. Ware's nursery is now very gay with spring flowers, which the last few warm days have brought out. The large beds of *Hepaticas*, single and double, of all shades of tint, from white to crimson and blue, are particularly attractive, as are likewise the *Crocuses*, of which there is a great quantity representing nearly all of the spring-flowering kinds in cultivation. The most noteworthy are *C. alata*, a new species with pretty white flowers; *vernus albiflorus*, the white flowered variety of the common spring *Crocus*; *C. suaveolens* and *minimus*, two pretty kinds very much alike, except that the former is sweet scented; both remind one of *C. Imperati* in miniature; *C. Weldeni* and the white variety *albus* are also very pretty, and so are the various forms of *C. chrysanthus*, notably *fusco-tinctus* and *fusco-lineatus*. The bulbous *Iris*s, *I. reticulata* and *I. persica*, are likewise very fine this year.

Hardy Primroses.—We have received from Mr. Groom, Linton Park, Maidstone, some charming bunches of *Primroses* and *Polyanthuses* in various shades of colour, from that of the common kind to bright purple. These had been picked from tufts that have become naturalised with the common sort in the woodland garden. Mr. Groom also sends us unusually fine blooms of the old white *Camellia* gathered from a bush loaded with bloom. Two years ago a surfacing of loam and sheep manure to the depth of 6 in. had been applied to it, and since then it has made extraordinary growth, and flowered profusely.

Epping Forest and the Proposed New Railway.—The directors of the Great Eastern Railway Company, finding that there is no reasonable probability of any opposed private Bill being taken before Easter, have reluctantly resolved to withdraw so much of their Bill before Parliament as relates to the extension of their line to High Beach. This determination of the Board has been arrived at because of the absolute necessity of the rest of the Bill, which relates to raising money for the purposes of the railway and is unopposed, being passed without delay.

Yellow Day Lily and Summer Snowflake.—Mr. Clews, Headfort, Co. Meath, sends us specimens of these hardy flowers to show how beautiful they are at this season when grown under glass in pots. The Day Lily (*Hemerocallis flava*) is indeed beautiful, of a clear canary-yellow, emitting an agreeable perfume. Mr. Clews states that he has some pot plants of it bearing as many as sixteen flower-spikes. The Snowflake (*Leucojum æstivum*) seems even more charming than its pretty congener *L. vernum*, which is now in flower so finely in the open air.

Saxifraga oppositifolia maxima.—One of the finest spring flowers in the York Nurseries at the present time is this beautiful variety, which is larger in every part than the ordinary form of *S. oppositifolia*, the flowers being nearly twice as large and of a brighter hue. Some large tufts of it completely covered with flowers are very fine. Other beautiful spring flowers are *Hepatica angulosa*, a scarce species much larger than the common *Hepatica*, with deep purple-blue coloured flowers, and two rare and beautiful *Crocuses*—*C. alata* and *minimus*—the former a new species, with white flowers pencilled with dark lines on the exterior; the latter like a small form of *C. Imperati*.

Epacris.—The finest display of these beautiful Australian plants we have seen for a long time is in Messrs. Lee & Son's nursery, at Wood Lane, Isleworth. A group of the finest varieties such as we saw here is indeed a beautiful sight, the various shades of colour being so soft, blend so harmoniously with each other. Many kinds are grown, but one of the most attractive was candidissima, a variety of *hyacinthiflora*, with long slender branches furnished nearly throughout their length with pure white bell-like flowers. It is one of the most valuable for cutting purposes, as the colour is less common in the genus than reds.

Calla æthiopica canariensis.—M. Godefroy-Lebeuf, Argenteuil, sends us a specimen of the Calla Lily thus named. We, however, see no difference whatever in the flower-spathe from that of the ordinary form when well grown, but the leaves are unusually large and handsome.

Cydonia Maulei.—This is a very pretty spring-flowering shrub remarkable for the distinct colour of the blossoms, unmatched even among the many varieties of the Japanese *Cydonia*. It is a bright orange-red, a shade of colour not often met with in plants; the blossoms being borne in such profusion makes it highly attractive. It is now finely in flower in Mr. Ware's nursery at Tottenham. A coloured plate of it was given in THE GARDEN, Vol. XIII., p. 390.

Anopterus glandulosus.—This pretty greenhouse shrub is evidently becoming popular; we saw the other day in Messrs. Low's nursery, at Clapton, a large batch just beginning to expand their attractive white flowers, which are produced in attenuated racemes from the axils of the thick, handsome, green foliage.

Lilac Charles X.—This is one of the finest of Lilacs, and particularly valuable for forcing into flower early, the blossoms being then of snowy whiteness. We saw a fine batch of it in full flower the other day in one of Messrs. Lee and Son's nursery, at Isleworth, and were much impressed with its beauty. The plants were of a serviceable size, both for cutting and for purposes of decoration.

The Royal Horticultural Society's Show at South Kensington on Tuesday next promises to be one of unusual excellence. Hyacinths, Tulips, Cyclamens, and other spring flowers will be shown in large numbers. There will, we understand, be also a spirited competition for the liberal prizes offered by a Fellow of the Society for Hyacinths and Tulips.

A Guide to the Literature of Botany; being a classified selection of botanical works, including nearly 6000 titles not given in Pritzel's "Thesaurus," by Benjamin Daydon Jackson, secretary to the Linnean Society, will shortly be published by Dulau, Soho Square.

FERNS.

SEASONABLE WORK.

OF this exquisite tribe of plants I write in the hope that my words may be of service to some who, like myself, delight to contemplate the wonderful variety of form, and diversity of shade, possessed by these plants; and who, to do this the more fully, wish to cultivate for themselves such forms as do not grow in a wild state in the immediate neighbourhood of their residences. The time has now arrived when Ferns under glass should have some extra attention in the form of repotting, cleaning, and placing in the most suitable position for the development of their natural beauty. Here we would say a word about the necessity for cleaning the house as well

as the plants. The glass ought to be made perfectly clean, so as to admit the greatest amount of light to the interior of the structure. The woodwork, the stages, the walls, the pots, and the floor or paths ought to be thoroughly cleansed, and kept clean all through the season, if the beauties of the plants are to be fully enjoyed. As to the plants themselves, we recommend first the cutting off all dead and disfigured fronds, though we do not advise the taking off healthy green fronds of the past, or of any season's growth, until they begin to show that their work is done by beginning to turn brown. So long as healthy foliage can be exposed to light, the plant derives strength and vigour from its functions, and this healthy foliage cannot be removed without reducing the vigour of the plant in a corresponding degree. Cutting off all the fronds of a Fern several times in one season is an excellent way to destroy the plant. To keep on all the healthy fronds, and to have these properly exposed to light, is one of the essentials to vigorous growth. Hence, where Fern fronds are in request for decoration, it is desirable to have a number of plants set apart to cut from until they are destroyed, and then their place should be taken by a similar lot, whose fate is sealed by the same verdict. This is far better than spoiling the beauty and ruining the constitution of a whole collection by continually cutting at those plants which happen to have the greatest amount of foliage upon them.

Well, having taken off all dead and unsightly fronds, the remaining ones should be thoroughly cleared of insects, if any harbour upon them, and of dirt. The sponge, the syringe, and a very soft brush, will all be found useful in the cleansing of different kinds of foliage on which dust or insects are found. Tepid water should be used; and if a little soft soap (not more than 2 oz. to 1 gall. of water) be dissolved in it, all the better where there is scale or fast-sticking dirt; or the insecticides may be used instead of soft soap with beneficial results. When the foliage is cleaned, the next thing to do is to repot those plants which require it. When Ferns are large, and are in large pots, they may sometimes stand several years without repotting, but the small and medium-sized plants should be examined, and if there is a mass of good roots to each, then shift them into pots just large enough to admit of some additional soil being placed all round the original balls, pressing the new soil moderately firm, but not making it hard. It is better to repot frequently than to give too large a pot at one time; for in the latter case the roots will make their way to the side of the pot, without exhausting, or even benefiting much by, the intermediate soil. By small shifts the plants do better, and are less cumbersome to move about. The soil to be used may be composed of peat, leaf-mould, loam, and sand, in equal proportions, though for *Adiantums* it is better to dispense with peat and to use more leaf-mould and strong loam; and these ingredients are better coarse than fine; indeed, it is all the better for the plants if there is a considerable addition to the soil of broken stone, charcoal, or cinders, as these tend to facilitate the passage of water and air through the material—a matter of the greatest importance to the well-being of the plants.

In the examination of the plants to be potted there may, perhaps, be found some with a very few feeble roots in pots much too large for them. In such instances the soil should be carefully removed from the roots; indeed, in bad cases the roots should be washed clean in water, and then put into the smallest pots into which they can be comfortably got, there to remain until these pots are full of fresh roots, when larger ones may be used. Plants treated as above should be kept in a close atmosphere for a few days, until some new active roots are found. Of course, these last remarks do not apply to deciduous Ferns when potted while without foliage. Careful watering is of primary importance, for although Ferns delight in an abundance of water, yet the soil should not by any means be kept constantly saturated, for that induces sourness, and the plants sicken in sour soil. The water should drain away and be followed by atmospheric air, which sweetens the soil and keeps the roots of the plants in healthy action. On the other hand, great care must be taken not to allow the soil to become too dry, or mischief will be produced much more rapidly than by water. Soil used for potting should be just moist enough to stick together when pressed by the hand into a ball, and yet break up loose when dropped out of the hand on the bench. After potting it should never, in the case of Ferns, be allowed to become drier than this, but on approaching that condition, enough water should be given to pass into and through the whole ball, not watering again until the before-mentioned condition has been regained. When that will be, will depend upon such a variety of circumstances that nothing short of a daily inspection of the pots and soil will afford a criterion as to when to give water and when to withhold. Experience and practice in watering soon enables an observant person to detect the plants which require water and those which do not.

W. J. BIRKENHEAD.

COUNTRY SEATS AND GARDENS OF
GREAT BRITAIN.*HEYTHROP, OXFORDSHIRE.*

SOME of our famous show places are popular out of proportion to their merit. Why a place becomes famous is not always easy to say on seeing it. We are speaking entirely from the gardening point of view, and from that of planting and park scenery. No doubt a house or some other feature of the place may give a country seat a reputation which extends to its gardens, but is not of them; certain it is that our impressions of some of our most famous places have been those of disappointment; on the other hand, gardens or parks one

parks, the size being so great and the clumps so well placed that the fullest development of the trees is secured. Our native deciduous trees, Limes or Elms are perhaps the safest for avenue planting, but with this mode of arrangement—in round groups or clumps—one could have a noble variety on each side of an avenue without spoiling the general effect—that is to say, a large number of well chosen native or perfectly hardy deciduous trees. With these such evergreens as were perfectly hardy and sufficiently large, such as the Evergreen Oak in certain districts, and the Scotch and Silver Fir might be grouped, but the Pine and the evergreen races generally we should hesitate to introduce, owing to the superior form of the great deciduous trees, of which, including their varieties and making



Heythrop, from the great avenue.

seldom hears of, give one a pleasant and distinct impression, and such is Heythrop.

The effect from the great avenue, which we illustrate, is one of the most dignified and fine we have noticed in any country seat. This avenue differs from others essentially in its width, and from the fact that it is made up of clumps instead of individual trees, with ample space between them; the result is a breadth, an airiness, and an effect of which we have never seen the like in any avenue, common as this mode of securing the effect in view is. Even where the close system of planting is adopted—that is to say, where the trees only get as much space as allows of their final touching on either side, and eventually arching over—the effect of a well placed avenue is often dignified and venerable. But this very wide grassy avenue with the trees in clumps, and ample grassy space between them, opens up quite another view of avenue planting for the larger class of places or for public

a wide selection of European and American trees, a great variety may be obtained for stately planting.

Another good feature of this avenue is that it goes straight to the house, is not cut off by any impedimenta in the foreground, which prevent the view to the house being enjoyed, the low wall of the courtyard simply separating the house from the avenue. And this has something to do with the singularly dignified effect of this Grass avenue. A somewhat similar effect is seen at Castle Ashby, in the great avenue there, and also at Holkar. The great and well developed summer-leaving trees and the wide Grass drive, however, make the effect at Heythrop much superior to that of either of the avenues just named.

Heythrop, the seat of Mr. Albert Brassey, is situated about 18 miles to the north-east of Oxford and 3 from the town of Chipping Norton. Immediately after the purchase of the estate by Mr. Brassey, a transaction which took place some

ten years ago, plans were prepared for the re-erection of the house, which, in Lord Shrewsbury's time, its former owner, had been burned down, and in about three years the present handsome structure was built, which, so far as general details are concerned, is of similar design to the old house, but fire-proof. From the time Mr. Brassey purchased the estate until the present vast improvements have been effected; new roads have been made, the farm homesteads either rebuilt or remodelled, new lodges and numerous cottages erected, together with commodious schools, the most recent addition being a handsome new church and rectory, erected at a cost of £12,000. On entering the old avenue just alluded to, at the new lodge on the road leading from Chipping Norton to Banbury, the mansion in the distance forms a prominent object. Having glanced at the old quarry, from which most of the stone used in the re-erection of the mansion, &c., was dug, we pass the new schools, and a block of neat cottages with their prettily laid-out gardens, and enter the park by the second lodge; here the new church and parsonage at once meet the eye, in close contiguity thereto being the old sanctuary (now used only as a mortuary chapel) with its Ivy-mantled walls and secluded graveyard. About a mile distant, through a well-wooded park, in which a large herd of Scotch oxen are depastured, the mansion is reached. Leaving this to the right, and passing through a noble clump of fine Beeches, the gardens are entered from the east end of the park. From the entrance gate at the sunken fence the borders on either side are planted with choice herbaceous perennials, such as Campanulas, Delphiniums, Phloxes, Potentillas, and Pyrethrums, which are found invaluable for cutting, a great quantity of flowers being required for decoration. To the right are the plant-houses, pits, frames, &c., the first being the stove and Orchid house (51 ft. by 21 ft.). Amongst the Orchids in bloom at the time of our visit were fine specimens of *Angraecum citratum*, *Cœlogyne cristata* (on one plant alone of which we counted 125 blooms), *Dendrobium nobile* (very fine), *D. pulchellum*, *D. Wardianum* (splendid), *Dendrobium glumaceum*, *Lycaste Skinneri*, *Maxillaria grandiflora*, *Odontoglossum hystrix*, *O. luteo-purpureum*, *Pescatorei*, *pulchellum*, *Roezli* (fine), *Oncidium cucullatum*, *Phaius grandifolius*, *Pilumna fragrans*, and one of the finest specimens of *Anthurium Scherzerianum* we ever saw, having 100 of its brilliant scarlet spathes; also fine plants of *Adiantum farleyense*. On leaving the stove a range of span-roofed houses is entered; in the first was a fine crop of Cucumbers still in full bearing (Rollisson's Telegraph), which Mr. Smith considers the best winter variety; the second was full of Roses, with Hyacinths and other bulbous plants; the next was devoted to Ferns, Azaleas, Deutzias, and Spiræas, the flowers of which are used chiefly in a cut state. The greenhouse forming the western boundary of the range is of similar size and construction to the Orchid house, and is well stocked with plants, &c., used for replenishing the large conservatory situated on the south-west side of the mansion. Running parallel to these houses is a block of well-stocked pits, and near to these, abutting on the northern side of the southern boundary of the kitchen garden is a range of buildings consisting of apartments and dormitories for some fifteen under-gardeners, Mushroom house, fruit room, in which we counted some 150 fine bunches of Grapes (Lady Downes and Alicantes), and other offices.

The kitchen garden, having an area within the walls of rather over 2 acres, is well stocked, the southern boundary being formed by a range of fruit houses, the first and last having a run of 50 ft. each, and the remaining six 40 ft. each. These are divided by an arched entrance with a tower, the latter being fitted up as dormitories for six of the gardeners.

The walls of the kitchen garden are now getting well covered, whilst the outer borders are studded with a number of pyramid fruit trees. To the east of the gardener's house, and running down to the gas-works, an orchard has been laid out, which is well stocked with trees, now coming well into bearing. From the greenhouses and kitchen garden to the mansion are shrubberies bordered with herbaceous plants, a neat gravel path running through the same and leading to a very fine Grass plat, having a circular gravel walk, backed by a wild flower garden, the latter forming an octagon, from the sides of which run alternately a set of well-formed gravel and greensward walks, overhung by fine Yew trees, the whole forming a most enchanting spot. Passing from here we come to the south front of the mansion, from the terraces of which charming views of the surrounding country are obtained, reaching as far as the Chiltern Hills.

At the eastern and western end of the mansion is an Italian flower garden, now filled with spring-blooming plants. Along the south front below the terrace is a large border filled with choice herbaceous and alpine plants, the Hon. Mrs. Brassey, who takes great interest in the flower gardens, having a fondness for old-fashioned garden flowers, &c.; and at the west end of the terrace she is having a large border prepared for the reception of similar plants; in fact, every available spot is being filled with hardy garden flowers. Leading from the Italian garden by a flight of steps the conservatory is entered; it is T shaped, has a run of 48 yards, and serves also as an entrance to the racquet court; the conservatory is well stocked with large Camellias, Tree Ferns, climbers, &c.

To the south-west of the house is a fine lawn tennis ground, bounded by shrubberies and walks, bordered with perennials, the greensward between the shrubbery and walk being studded with beds of Roses. Undulating walks lead from thence to many a charming and secluded spot, such as "the ladies' well," the latter being approached by a zig-zag path running through a rough mound planted with Honeysuckles, Sweet Brier, American Blackberry canes, Cotoneaster, &c. Passing to the old kitchen gardens, now used as a nursery for feeding the shrubberies, the old fishpond is seen, in the centre of which is an island planted with Clematis, Ivy, Pampas Grass, Tritomas, Ferns, &c., the walk around being banked with rockwork, growing from which are Ferns, Saxifrages, Sedums, &c.

A pleasant feature of the place is the energetic way in which many beautiful hardy flowers have been added to the borders and shrubberies of late years, and when we saw it the place was alive with the beauty of these arranged in various ways; part of the plan was the wild garden, which was effectively carried out in certain clumps near the house, perhaps rather too near for this system; still, it was very effective and beautiful with striking plants like the Rhubarbs and Heracleum, the ground covered with many bright free-flowering things—Forget-me-nots, Narcissi, and the like. The principle adopted was the dotted or miscellaneous one, which is not quite so good for effect as that of colonies or groups of each kind or of two kinds, one succeeding the other. The effect of the general mixture is to give a somewhat monotonous and tiresome aspect to things, especially if the greatest care is not taken to vary the mixtures. The true way is to do ourselves what we find in woods and copses. A spot is suitable to a plant, and occupied by that plant or by some others that succeed it in the same ground, but rarely do we find a general dotting mixture. Frequently, two plants or more occupy the same ground, and one flowers before the other, just as the Marsh Marigold flowers before the Iris that grows among it. The whole idea, however, is so new

to places generally, that we can only expect the best effects to be obtained for it after some years of study and experience.

In the woods here, however, examples of the true system were seen here and there in the shape of large colonies of Foxglove, which naturally do not occur in the woods, and which, although native plants, may be included among the materials of the wild garden. These were being placed in the true way for effect.

Some banks are clad with a mixture of Honeysuckle, Sweet Brier, and some free-growing Roses, well planted, and likely to form a beautiful feature in time. One sometimes has to find such beautiful plants in cottage gardens. While such mixtures are beautiful under the control of a careful gardener, perhaps the safer way, and not a less artistic one, is to have groups or colonies of Honeysuckle by itself; and so of the Sweet Brier and other wild Roses, the groups or climbers being formed in a natural and free manner, the advantage of this being that they may be left to themselves for many years. Some unions, however, are charming, and do not lead to disaster—such, for example, as the Honeysuckle and the Hawthorn, which, indeed, often marry, and get on very well together without the intervention of man.

THE INDOOR GARDEN.

A PRETTY BASKET PLANT.

(FUCHSIA PROCUMBENS.)

THOSE only acquainted with the ordinary type of Fuchsia, so common in every garden, would scarcely recognise this little creep-



New Zealand Trailing Fuchsia (*F. procumbens*).

ing plant from New Zealand as a Fuchsia, so different is it in habit of growth and flower from ordinary varieties. It is now, however, beginning to be valued as a basket plant, a mode of growth under which it thrives capitally and makes both a novel and attractive object. Its beauty lies not so much in the flowers, which, though produced in abundance, are almost hidden among the dense foliage, as in the bright coloured berries which succeed the flowers, and which remain on the plant and retain their attractive magenta colour throughout the winter till late in the spring, when the plant becomes again covered with new foliage and flowers. If placed in good, rich soil its branches grow rapidly and hang in graceful profusion over the sides of the basket or pot in the manner shown in the annexed illustration. As to the perfect hardiness of the plant in the open air in this country, there can be no doubt, provided the situation is dry and the border, or whatever it is grown on, thoroughly drained.

W. G.

ECONOMICAL HEATING.

SELDOM has more coal been consumed in hothouse furnaces than this winter. When the outside temperature runs down to zero, the contest between frost and fire may be said to rage the fiercest, and boilers, furnaces, pipes are all pushed to their utmost, and it is in this extreme pushing of hot-water apparatus that most fuel is wasted. Nor is the waste of coal the only or the worst evil, furnace bars are melted, doors burnt, boilers ruined, and joints of hot-water apparatus started or strained. The fact is the majority of our glasshouses are under-heated, either the furnaces or boilers are too small, or the amount of pipe too limited for the work they have to do. The working force of most heating apparatus is measured from far too high a temperature in the open air; instead of making zero a possible standard of cold with which we might have to contend, from 10° to 15° of frost is too often assumed as the measure of our heating difficulties. Of course, when the standard sinks as low again the heating arrangements are found totally insufficient, and break down. Then the arrangements are often so incongruous as to prevent efficiency. A large boiler is placed over a small furnace, and *vice versa*, and the proportion of pipe to both seems left to chance rather than to practical wisdom or scientific experience. There are three links in the chain of heating hothouses; these are the boiler, the furnace, and the hot-water pipes. No heating apparatus can be one whit stronger or more efficient than the weakest link in the chain. Hence the importance of having each strong enough for its work, and all thus fitted nicely to each other. Coal and water form the motive power, but the amount of heat thrown into the atmosphere of hothouses will be in the exact ratio of the weakest factor in the heating arrangements, whether that be found in furnace, boiler, or pipes. Boilers have monopolised the larger share of attention, and no doubt they are a vital part of the arrangement. But furnaces and pipes are equally or even more important. The first are mostly too short and too shallow; depth and length of furnace intensifies the energy of combustion. We are constantly hearing of trials of boilers—trials of furnaces would prove equally, perhaps more, useful. Most of them are most wasteful of fuel; coal and coke, especially during very severe weather, are raced through rather than converted into heat in the furnace. All smoke and a great deal of the flame of furnaces waste heat rather than send it through the iron into the water. Combustion is a compound, a complex rather than a simple process.

Heat is at once the cause and the product of combustion. A certain amount of heat is expended in completing the combustion of the coal. This is unavoidable; but the less heat absorbed in this necessary process the better. A certain amount of oxygen is needed to decompose the coal, and so liberate and set free its heat for active service on the boilers or in the water. All beyond what is needful causes waste. Most hothouse furnaces are over-oxygenised. Nor is there only an excess of air; it is often admitted at the wrong place. It generally passes through the furnace bars, and hence the heat there is more intense than under the boiler, where it is most needed. Would it not be better to admit more oxygen through the furnace doors. Sweeping along from these it might help to fan the top of the fire instead of the bottom, and thus produce most heat where it was most needed—under the boiler. Far too much cold air is often admitted; this rushes through the furnace and actually tends to cool the fire-box instead of warming it, especially if any portion of the bars happen to be empty or bare of fuel. Besides, in the conversion of coal in our furnaces into gases and ashes, we have two sources of heat. The one results from a mechanical change—the other from a new chemical combination. By the first, carburated hydrogen and other inflammable gases are liberated; by the second, carbonic acid gas is formed. The two processes differ vitally in this, that the first gas may be liberated and discharged into the air without adding to the heat of the furnace, while the latter cannot be formed without the evolution of heat. The first gas must be burned before it warms; the second is the product of combustion. Now, many of our furnace arrangements and stoking renders the burning of carburated hydrogen in our furnaces impossible thus. These furnaces compel stokers to heap fresh fuel on the top of the flaming coal, and the energy and heat of the latter sweep the soot and gases up the chimney with a rush. This causes an enormous waste of heat, and might readily be avoided by a more philosophical furnace, and more cautious

stoking. With a long, deep furnace, and a dead plate on the level, or, better still, on the slope, elevated considerably above the line of the furnace bars, all the gasses given off during the preliminary stages of combustion would be passed over the live coal and consumed, thus adding very much to the heat of the furnace. On the contrary, when these gases are swept through the furnace in a cloud of smoke, not only are they unconsumed, but they hinder the other source of heat that results from the conversion of the carbon of the coal into carbonic acid gas, through the ministry of oxygen, from taking full effect on the boiler. Thus, by a proper construction of furnace, and careful stoking, little or nothing but live coal need come into direct contact with the boiler. It is impossible to exaggerate the vital importance of the thorough liberation and utilisation of all the latent heat of our fuel in our furnaces. Next in importance to this, as regards the saving of fuel, comes a sufficiency of piping, and ample area of boiler and furnace. We build furnaces, and purchase boilers but seldom, and pipes but once in a lifetime, but coal must be purchased every year. With the best possible arrangements, the expense of fuel is heavy and incessant. It is obvious to practical men that by increasing the heating surface we lessen our coal bills, for the sum total of heat evolved depends as much or more on the area of radiating surface as on its temperature. Never, therefore, is penny wise and pound foolish policy so vividly illustrated as in the stinting of pipes, boilers, and furnaces. I stay not now to lay down any hard and fast lines as to the proportion of pipe needful to heat hot-houses of given area to certain temperatures, nor the size of boilers or furnaces needful to heat given lengths of pipes. These data are given by Hood and other authors on heating. But when all such calculations are made, the wisest economy will often consist in adding at least 20 per cent to the boiler and pipes and furnace-power. Never is a reserve of force more useful than in heating apparatus, and no one need use all his heating power unless zero temperatures demand it. But coal and money in repairs and furnace bars and doors will be saved by having boilers that could do double the work on an emergency; furnaces of sufficient length and depth to perfect the combustion of the fuel; and so much pipe that the water need never be forced to beyond 10° below the boiling point, be the external atmosphere what it may.

D. T. FISH.

THYRSACANTHUS RUTILANS.

FOR table decoration during the early months of the year *Thysacanthus rutilans* is quite unsurpassed, as not only has it good foliage, but puts forth numerous long string-like appendages that become laden with gay scarlet blossoms. These are tube-shaped, about 1½ in. long, and depend very gracefully from their slender supports, and when seen drooping down on a snowy-white cloth, have a brilliant and striking effect. Cuttings put in any time now root readily if placed in strong heat, and will make nice plants by the autumn, but those that produce the best results and make most show are the year-old stock, which should be pruned back to the last joint near the base, when, if kept somewhat dry, and in a situation where they can have a brisk temperature, they will soon break, and may then be shaken out and repotted. The soil that suits *Thysacanthus* best is a mixture of peat and loam in about equal proportions, or leaf-mould and the latter, with just sufficient sand to keep them open and porous. The potting completed, the plants should be plunged where they can get a brisk bottom heat to give them a start, after which they will do in any light, airy position in any part of the stove. During summer the best place to grow *Thysacanthus* is in a pit where it can be plunged in a bed of leaves, or leaves and tan gently fermenting, as there the root moisture is more equable, and the plants can be more fully exposed to sun, which hardens and ripens the stems, and induces a more floriferous habit. As the strings of flowers hang down 2 ft. or 3 ft., the plants should not be stopped, but run up to that height, unless wanted for baskets, for the ornamentation of which they are well adapted if grown more bushy, as from their elevated position they can trail over the sides and be seen to the greatest advantage. If kept in pots during summer, it is very important that the plants be moved to a warmer temperature before the nights get cold, otherwise their foliage becomes discoloured, and the leaves below are apt to fall off, and thus give a shabby appearance. When placed in the stove, the plants should be stood on inverted pots, that they may have their heads well up, and so prevent injury to the flower-stems from want of light as they thread their way down to the base. The only insects that are at all troublesome to *Thysacanthus* are scale and mealy bug, and these may easily be got rid of by watching and

hand-cleaning whenever they are seen, as they can readily be destroyed on the stems. S. D.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Light and Dark Fuchsias.—"G. A." starts a natty question in asking whether parti-coloured Fuchsias should be described as light or dark. In reference to Fuchsias for exhibition, it would be far better to cut the knot thus: Abolish the two classes of light and dark, and let them be mixed in any manner the exhibitor thought best; the groups would be far more effective and the interest of the show increased; neither would the culture of the Fuchsias suffer in any way in consequence. For *Pelargoniums*, where the variety of colours is far greater, we have not yet got to the length of showing them in classes according to colour; on the contrary, in classes of eight, twelve, or eighteen varieties of scarlet *Pelargoniums*, we are constantly meeting with pure white varieties at shows, the word scarlet in these cases simply meaning zonals, as distinguished from show, fancy, French, or regal *Pelargoniums*. If the distinction between light and dark Fuchsias is to be upheld, common sense would decide. There are only two ways of deciding the question; the first would be to reckon all flowers light or dark in which either colour largely predominated; the second to determine that no flower should be eligible in either class unless the sepals and petals alike were either light or dark. To enforce the second rule strictly would exclude many of the best Fuchsias from being shown at all. The best remedy is to show all Fuchsias in one class, increasing the number of the plants and the value of the prizes if need be, so that exhibitors need lose nothing by the arrangement. The simpler and fewer loop-holes in prize schedules the better; and it is humiliating to jurors who are called on to assess merit to have to spend time, and not seldom lose temper and patience in useless wranglings about the colours of a corolla, or sepal, or a petal.—D. T. FISH.

Best Position for *Linum trigynum*.—I cannot agree with anyone who says that this plant is a shade-loving subject in the true sense of the word; neither should I consider that full exposure to the sun when growing under glass is sound treatment. I am by no means surprised to learn that this *Linum* grows well in the full sun when in the open ground in the hot climate of Northern Africa; and, probably, were it planted out under glass, so that the roots could at all times draw upon a good store of food and moisture, we should not need to give much shade, as a constant, never-failing supply of water at the roots will, we know, in many cases suffice to counteract undue aridity in the atmosphere. The true way of growing this plant under glass I consider to be to hit off the happy medium as regards light and moisture, for of natural heat *Linum trigynum* can scarcely get enough in our climate. Enough light and exposure to sun to build up the tissues and ripen the flowering wood, and just enough shade to enable the grower to maintain the atmosphere sufficiently moist to promote free growth and keep away red spider is, I hold, all and just what is required to grow this plant into fine blooming specimens. One great point is to get the work done as early as possible, and the only way to do this is to start the plants in good heat at the turn of the year, cutting them back, watering carefully for a time, then shaking them out, fresh potting in free, geneous compost, and keeping them near the glass away from large plants of any kind.—J. C., *Byfleet*.

***Daphne indica* on its own Roots.**—I have read with interest "J. C.'s" communication (p. 261) on the culture of this *Daphne*, but allow me to inform him that I have grown it and flowered it with much greater success on its own roots. Does it not seem a mistake to expect robust growth in a plant on a stock such as the *Mezereon*? I have a plant of *D. indica*, eight years old, in a 16-in. pot which has been in bloom over two months, and which has now (March 8) over 100 heads of bloom open on it. For several years I have treated it with a niggardly hand, as it was wanted for a vase in the house. Nevertheless this plant measures over 3 ft. across, and has its branches bent down to retard its vigour. I have several young plants (cuttings) which do equally well. My plants are potted in turfy loam and road grit. They are grown in a warm Vinery, frequently stopped during the growing season, and are turned out into a cold frame to ripen their wood. I place them close to the glass on inverted pots, and only keep the sashes on during heavy rains and in just the hottest part of the day. Many have been astonished at my success, and had no idea that this *Daphne* could be grown on its roots to such perfection.—NEMO.

***Chrysanthemum Etoile d'Or*.**—As an instance of the floriferous character of this now popular yellow flowered Paris Daisy we understand that Mr. Howard, of Southgate, who grows it extensively, continually sends cut flowers of it to market three

times a week, and has been doing so all through the winter. This fact speaks for itself as regards the value of the plant for affording an almost perpetual crop of bloom.

The Spring Snowflake (*Leucojum æstivum*) grows exceedingly well in a cool greenhouse, and is very beautiful. Three bulbs placed in a pot produced at least a dozen flower-stalks nearly 2 ft. high, furnished with delicate white Snowdrop-like flowers tipped with green. It would be found very useful for table decoration and for bouquets.—BROCKHURST, *Didsbury*.

ORCHIDS.

ORCHIDS AT BURFORD LODGE, DORKING.

THE following comprise the more noteworthy Orchids now in flower in Sir Trevor Lawrence's garden:—

Dendrobiums—Of these there is a fine display, a large number of kinds being at their best. *D. nobile* was represented by every variety obtainable, some of which were greatly superior to the ordinary forms and some decidedly inferior. One of the finest was one named *grandiflorum*, with unusually large flowers having broad sepals and wide deep lips. The colour of the sepals is almost white, with the exception of a rosy-purple tinge at the tips, while the lip has the dark blotch more intense than in the type, which increases the purity of the white sepals. The form intermedium, which is somewhat similar to the preceding, but smaller, was likewise very fine, as were also several dark varieties, notably one named *superbum*. *D. Wardianum* was of course represented numerous and finely, one plant on a block having flowers larger than we have hitherto seen them, being nearly 4 in. across. The plants are grown in various ways, in pots, baskets, on blocks, &c. Those in pots, with the stems tied erect, were particularly fine, the growths averaging 3 ft. in height and furnished with flowers throughout. The white form of *D. Wardianum* was in bud, as were also the white-flowered varieties of *D. crassinode* and *D. lituiflorum*; the latter is said to be one of the loveliest of white-flowered Orchids. The two last-named Dendrobies were very fine, some large specimens, principally in baskets, being literally covered with flowers. Freeman's variety, too, of *D. lituiflorum* was still gay, though not so fine as it had been. Two Dendrobies, not often met with, but extremely pretty, are *D. Boxalli* and *crepidatum*; they are somewhat similar in appearance; the former has flowers $1\frac{1}{2}$ in. across, with narrow rosy-tinged sepals, and a circular lip with a large blotch of yellow, edged with parallel lines of white and rosy-purple. It is remarkably floriferous, the long slender stems hanging gracefully over the sides of a basket furnished their whole length with blossoms, and the peculiar whitish spaces on the stems between the flowers combine to render them even more attractive. The splendid hybrid Dendrobies, *D. Ainsworthi* and *D. splendidissimum*, were past their best, but judging by what we saw they must have been very beautiful. Whatever the general opinion may be with regard to the distinctness of the flowers of these two kinds, they are exactly similar in appearance and habit of growth, a fact with which we were never more impressed than when we saw the two large plants in question side by side at this collection.

Of the old *D. Pierardi* and its variety *latifolium*, still one of the best of the family, there were some superb examples; one in particular was remarkable; it was in a suspended basket some 6 in. square, and the long slender stems hanging over the sides were perfect wreaths of blossoms. The lovely *D. primulinum* and its large variety *giganteum* were likewise equally attractive. That scarce, yet very beautiful, species *D. Cambridgeanum* was just expanding its large golden blossoms produced on the current season's growth, and very pretty they looked still accompanied with its deep green foliage. A noble plant of Veitch's Dendrobe (*D. Veitchianum*) was bearing two fine racemes; grown so finely as it is here, it is by no means so unattractive as we had previously considered it to be, the greenish yellow of the flowers and dark red bars forming a marked contrast. Another kind, more remarkable for its rarity than its beauty, is *D. Ruckeri*, which is somewhat like *D. luteolum*, but scarcely so attractive even as that kind.

Dendrochilum glumaceum.—Of this elegant and exquisitely scented Orchid we saw a splendid specimen bearing some 150 spikes; in fact, the largest plant of this graceful Orchid we have ever seen. So many long drooping spikes formed quite a fountain of flowers. It was growing in the East Indian house with Dendrobies and similar kinds.

Cypripediums were sparingly in flower compared with the large number grown. The most notable were *C. Argus*, a kind with handsome flowers in the way of *C. Veitchi* (superbiens); one plant of

this was bearing fourteen blossoms. *C. Lowi*, too, was very fine, as was also its near ally *C. Haynaldianum*. Of the popular old *C. villosum* there was a plant well nigh 3 ft. across bearing several dozens of flowers, besides a large number that had been cut. These plants are amongst the finest we have seen. The extremely handsome *C. laevigatum*, one of the aristocrats of the genus, was in fine flowering condition, and the plant, bearing several flower-stems, represented a very fine form, the colour being brighter than usual, and the spots on the long pendulous tails being more pronounced.

Oncidium hyphæmaticum was the only species noteworthy in flower in this numerous genus. It has long branching spikes and numerous flowers of medium size, having clear canary yellow lips and dark olive-green sepals beautifully edged with a golden hue. Several other species of *Oncidium*, however, such as the noble *O. macranthum*, will shortly make a fine display of bloom.

Phalænopsis.—The lovely *P. Schilleriana* was represented by some remarkably fine specimens, with long, branching flower-spikes bearing several scores of blossoms of a deep rosy tint, indi-



Phalænopsis grandiflora.

cating some of the finest variety. *P. grandiflora*, too, was very fine, the pure white flowers contrasting beautifully with those of *Schilleriana*.

Cœlogynes.—Of *C. cristata* there were immense plants, but past their best as regards the flower, except one, a variety with a lemon yellow crest on the lip instead of orange; it is named *Lemoniana*, and was very showy. Another species, a pigmy compared with the other, was *C. conferta*, a charming little plant in the way of *C. ocellata*, but only a few inches in height. It is extremely floriferous, and lasts in flower a long time, and is quite distinct as regards habit from most of the others, a circumstance which renders it all the more desirable. Some well-flowered plants of *C. flaccida*, an old but very beautiful species, showed finely what a graceful decorative plant it would make for general cultivation. On *Pleione Hookeri*, which is nearly allied to the *Cœlogynes*, there were several blooms expanded, and a very handsome Orchid it is with its large puce-tinted blossoms, having beautifully fringed lips, and it is all the more valuable on account of its being amenable to cool-house treatment.

Cymbidium eburneum.—The grandest plant we have ever seen of this superb Orchid was in perfection. It was bearing fourteen expanded flowers and two buds. It was growing in a 12-in. or 14-in. pot, apparently in turfy loam and peat. The gracefully grass-like foliage arching over the pot and the large ivory-white flowers rendered this plant one of the most conspicuous of all the Orchids in flower.

Odontoglossums.—The houses devoted to this beautiful family were gay with the flowers of many kinds. The lovely *O. crispum* (Alexandra) was of course represented very numerous, and by extremely fine forms, one named *majus* being by far the finest we have ever seen. The flowers measured exactly $4\frac{1}{2}$ in. lengthwise and just upon 3 in. across the sepals. It was likewise beautiful as regards the markings of the flower, and the margins were finely crisped. Other plants were more remarkable for the number of flowers on the spike, which in some cases were branched like those of *O. Pescatorei*, which was represented by some fine forms. The rare *O. nevadense* was at its best, one plant being furnished with twenty-five flowers; it is a distinct species, the pure white lips

being conspicuous and attractive. This was the first time we had met with the rare *O. elegans* grown in true character. It is in habit, form, and size of flower the counterpart of *O. cirrhosum*, but the colour is exactly similar to that of *O. gloriosum*, a circumstance which favours the supposition that *O. elegans* is a natural hybrid between these two species. It is indeed a handsome kind as grown here, one plant having a long branching spike, bearing thirty-eight blossoms. Of *O. Rossi*, a plant of the major variety was bearing fourteen flowers, a fact sufficient to indicate how finely it is grown here. The vexillariums were not yet in flower, but they promise to produce a grand crop of bloom. They are grown in an intermediate temperature, well up to the light. Under similar circumstances, but still closer to the roof, was the collection of *O. Phalænopsis*, a species which has the reputation of being difficult to manage. The plants here, however, in suspended pots clearly



Odontoglossum Rossi.

indicated by their healthy foliage and plump bulbs that the treatment suited them, and several were in flower. *O. Edwardi*, a new and as yet rare species, was in splendid condition, having an erect branching spike furnished with scores of pretty small rosy-lilac flowers, each with a golden crest on the lip. The agreeable odour emitted by the flowers greatly enhance its merits. A superb variety of *O. roseum* was finely in flower. It is a small growing species often rejected as worthless in comparison with *Mesospinidium vulcanicum*, which is similar to it, but usually of a deeper tinge of rose; the variety of *O. roseum*, however, which we saw here was even brighter than what are considered to be fine forms of the *Mesospinidium*. *O. Uro-Skinneri* is a species much neglected considering how showy it is with its broad rosy-purple lip, and it continues in perfection for a very long time. Some of the forms, however, are much inferior to others. Other *Odontoglossums* in flower of lesser note were *O. tripudians* and its near relative *O. triumphans*, *O. pulchellum majus*, *Andersonianum* in several varieties, one of which was almost a rose colour and beautifully spotted, *O. cirrhosum* and its superb variety, *Klabochorum* with larger and more conspicuously blotched flowers. The true *O. nævium majus* will shortly be in flower; it is said to be far superior to the form commonly known by this name. Of the rare *O. Ruckerianum*, a species similar to *O. Andersonianum*, there was a fine plant in flower, the blossoms of which are of a purplish hue, with conspicuous chocolate spots, aggregated in clusters.

Miltonia cuneata is one of the finest of Orchids, and so distinct in appearance that it will probably become a popular kind; its chief beauty consists in the ivory-like whiteness of the broad roundish lips of the flowers, contrasting strikingly with the darker hue of the sepals. A large plant bearing a dozen erect spikes some 18 in. high formed a beautiful specimen, which was seen to best advantage when viewed from above, the white lips being then more conspicuous. It is grown here in a cool house along with the *Odontoglossums*.

Vandas.—Of these the rare *V. Cathcarti* was in flower, the large chocolate-barred blossoms being very handsome, borne on a gracefully-drooping spike from a noble "break" some 4 ft. or 5 ft. in height. The charming little *V. cœrulescens* was everywhere, its pretty flowers, of various shades of lilac, being so different from those of the ordinary type of Orchids. It is grown very freely here; we noted one spike on a healthy plant nearly 2 ft. in length. The new *V. lamellata* Boxalli was still in flower, and had been continuously since we visited the collection in September last.

These, besides the beautiful new *Phaius* alluded to last week, are a few among the many fine plants to be seen in this unique collection.—W. GOLDRING.

LADY'S SLIPPERS.

Of all the Lady's Slippers, *Cypripedium Maulei* is one of the best. It is simply a form of the old greenhouse kind *C. insigne*, but then it is the best form, and far more beautiful in leafage and blossom than that well known kind. The white upper sepal with its exquisite mauve-purple blotches is very attractive, and in a cool, airy house each individual flower endures quite fresh for a month or even six weeks. Mr. Maule tells me that it was imported from India many years ago, but even now it is rare to find it true. The name is not so uncommon, and I grew two forms here as "*Maulei*" ere a friend was good enough to send me the true kind as a new year's gift last season. Who is so fortunate as to possess *C. insigne Veitchianum*, a plant of which fetched £23 at the sale of the Meadowbank collection? I shall be glad to see it described by anyone who now grows it, and better pleased still to see a fresh flower of it. Is *C. insigne Chantini* distinct from *C. insigne Maulei*? or is it synonymous with *C. insigne Veitchianum*? *C. Maulei* even as a form of *C. insigne* is so beautiful, that I am deeply interested in a variety described at p. 154 of Mr. Williams, "*Orchid Manual*." Speaking of *C. insigne*, he writes: "I have seen a fine variety which is exactly like the old *C. insigne* in habit, but the flowers, which are large, have bright crimson streaks running up into the white of the upper sepal, and the white being continued round the sepal gives it a very different appearance from the old variety and adds much to its beauty. I saw this in bloom with the Messrs. E. G. Henderson." Now I am anxious to make the personal acquaintance of a variety of *C. insigne* having crimson—bright crimson, forsooth—streaks on its white-bordered sepal. If I meet with it I will take its portrait on the spot, and such a crimson-streaked wonder shall not be a nameless wanderer any longer. Has Mr. O'Brien any floating memories of this crimson-streaked Lady's Slipper? Anent *C. insigne* and its forms, named and otherwise, it is interesting to know that they grow and bloom better in a cool airy atmosphere during the summer and autumn months than when grown in a close, high, and moist temperature. Some slight shading from the direct glare of sunshine, and a skiff with the syringe morning and evening keep them clean and encourage the flowering growths. Some use peat, but charcoal and living *Sphagnum* is a safe and satisfactory compost for this and many other kinds.

BETA.

ROOTS OF EPIPHYTAL ORCHIDS.

A CURSORY inspection of the roots of these, the most numerous section of Orchids, discloses a marked difference in their general appearance and formation, and a more intimate acquaintance with them, such as is obtainable when engaged in their cultivation, shows a great difference in the length of time during which the roots of different genera or particular species live, that is, when placed under like conditions. It is needless to say that although the roots of even non-deciduous species of Orchids are less enduring naturally than those of most other plants, yet on their keeping as long as possible in a living state depends the healthy growth of the plants, for if Orchids are deficient in the quantity of living roots they are invariably proportionately weak and incapable of making strong growth. So evident is this, that those who have had little experience in their cultivation are aware that if by any means a plant has its roots prematurely destroyed, the succeeding season's growth will unavoidably be much smaller. The thick rooted kinds, amongst which may be included the *Vandas*, *Aerides*, *Saccolabiums*, and *Renantheras*, form roots that under favourable conditions live much longer than those of the *Oncidiums*, *Epidendrums*, *Lycastes*, *Dendrobiums*, *Barkerias*, *Brassias*, *Brassavolas*, *Miltonias*, and the great bulk of other genera. To the kinds above named, notable for the endurance of their roots, may be added *Phalænopsis* and most of the *Cattleyas* and *Lælias*, which also under favourable conditions will live for a much longer time than those of the generality of others of the Orchid family. The subject of root endurance in these plants may seem of more interest to the physiologist than it is to the cultivator, yet this is far from being the case, for by what I have repeatedly noticed in cultivation, if through any cause the roots of such species of these plants as naturally live the longest are injured, the effects are much worse than a like injury has upon the kinds that have roots of a less enduring character. Neither is this anything more than might be expected

from what is continually before us bearing in the same direction, as seen in the case of plants generally not of the Orchid family. The roots of Orchids, clinging as they do so tightly to any substance to which they can attach themselves in a way that renders it impossible to remove them without mutilation or destruction, at once point to the mistake when it can be avoided of any interference so far as separating them from whatever they get attached to.

Potting.—In potting it is impossible to carry out the operation without breaking a great many roots, for when a plant is in good health it makes roots freely and the greater portion almost invariably push through the soil to the sides of the pot or basket, and their nature is such that when once attached they keep on clinging closely to it. So long as their extension continues a removal of the soil in which they are placed is unquestionably an operation that requires to be carried out as often as necessary to avoid its retention when so far decomposed as to have got at all into an adhesive soddened condition, for the older roots cannot live when in contact with material that is in this state, and the new ones perish as soon as they touch it, but so long as the soil keeps fit for the roots on no account should the plant be taken out of the pot or basket in which it has been grown. Yet to keep up a trim appearance in their plants there is no doubt that many growers are tempted to move them oftener than there is occasion for, particularly those that are grown in pots. In baskets, either such as are made of wood or earthenware, the material, from its exposure to the air, does not so soon get into an unsuitable condition, and when it does its removal becomes necessary, from the way the roots usually are visibly held by the basket there is no attempt to remove them, the old soil being simply picked out and replaced with new. But in pots the adhering roots are mostly out of sight until the plant, with a good deal of force, is knocked out or the pot detached from the plant in pieces, to the unavoidable breakage of no small number of its best, that is, its last season's formed roots. It is quite true there are plenty of Orchids that have roots of a nature such as I am speaking of that are periodically, at intervals of perhaps two or three years, subjected to this injurious root-breaking and yet keep on growing in a fairly satisfactory way when the other conditions connected with their cultivation are favourable; but the manner in which they would grow if not submitted to this periodical root destruction never appears unless the grower tries the effect on a portion of his plants of removing the old soil without detaching them from the pots they occupy, and of repotting others of like kinds in the usual way by turning them out.

Lengthened Undisturbance of the Roots.—I had several examples representing the different families that suffer most by having their roots disturbed—*Saccolabiums*, *Aerides*, *Vandas*, *Phalenopsis*, *Cattleyas*, and *Lælias*—that for more than a dozen years were never detached from the pots they at first were put in. Whenever the material wanted wholly renewing they were laid down on their sides and the old soil worked out with all the loose crocks as well, removing any roots that were dead, finishing by syringing all the small bits of old peat and *Sphagnum* clean out, and when the plants were in want of larger pots, those in which they had so far been grown were placed entire within the new ones, filling the latter up with large crocks to elevate the inner pot so far as necessary. This was continued until some of the plants occupied three or four pots one within the other; several examples of *Cattleya Mossiæ*, *C. Skinneri*, *C. crispata*, *C. amethystina*, and *C. Trianae* went on in this way until they required pots from 18 in. to 24 in. in diameter to admit of their outside growths keeping their roots within the pots. Several of them when first begun with did not consist of more than from four to six bulbs each. *Cattleyas* and *Lælias*, managed without disturbance in this way, hold the leaves on their back bulbs much longer, and increase in size much faster through the greater number of double breaks they make than when repotted in the ordinary manner; and with *Aerides*, *Saccolabiums*, *Vandas*, and the like, although they do not require larger pots so often as the bulb-forming kinds that cover more surface yearly, still they increase in strength and make side growths faster than when their roots are disturbed. Most Orchid growers adopt this treatment with any particular plant or plants, that they may be especially anxious to make the most of, but the practice is seldom followed to the extent that with advantage it might be. It may be urged that it takes much more time in potting when this method is practised,

which is correct; but Orchids are expensive plants, and for my own part I would far rather have a moderate number above the ordinary run than an unlimited quantity of such as are to be seen anywhere; and although this non-disturbance of the roots method of growing Orchids is by no means a universal panacea for the many ills they are subject to in cultivation, yet if their wants in other respects are fairly supplied, I know of nothing that will do so much to promote their health and help them to increase in size. In common with all other clinging plants they are not formed by Nature to bear, without serious injury, having their roots severed from whatever they have attached themselves to, although their tenacity of life often enables them to stand a good deal of that which is opposed to their well-being.

Importance of Root-hold.—There is another matter connected with the roots of Orchids, but more especially the kinds that do not form such large quantities annually, which is that such roots as are produced and are not able to attach themselves to anything do not acquire their true character, and do not live nearly so long as when they have something to which they can cling. This anyone in possession of a collection, or even a few plants, who will take the trouble may easily see by noticing the roots of a *Cattleya*, *Lælia*, or other species of similar habit that has pushed its leading growths beyond the limits of the pot, and has made a number of roots that consequently had nothing to lay hold of. Such roots, although they keep on extending during the growing season, will usually, after the resting period, be found mostly devoid of life, whilst those that have been formed at the same time, and have even attached themselves to the outside of the pot, will not only retain their vitality for a length of time, but if examined will be found possessed of much more substance than those that have not become fixed to anything; and where this has occurred the succeeding growth produced by a bulb that has not had anything to attach its roots to is almost invariably deficient in size and strength. The lesson which this obviously teaches is that means should be taken to avoid the growth extending beyond where there is a medium for the roots to fasten themselves to. I have tried many experiments with the thick-rooted section of Orchids, including the true air plants, the roots of which might and often are supposed to be in the position they like when hanging in the air unattached to anything; yet this is a mistaken idea. Even the tall-growing kinds of *Aerides*, such as the different forms of *A. odoratum* and *A. virens*, with *Vanda teres* and *Renanthera coccinea*, which collectively may be taken as representative of the Orchids that push out quantities of roots high up their stems, all grow much stronger and do better in every way when their roots have something to cling to than if hanging unattached to anything. As most Orchid growers are aware, many of the air-rooting plants will live and grow if only hung up in the house by a bit of wire without any root-hold whatever, but under such conditions their growth is never near like what takes place if the roots can fix themselves to even a bare piece of wood or the outside of a pot, neither of which can afford any sustenance.

Results of Roots Attached and Unattached.—I took a single growth of *Vanda teres* about 2 ft. long and fixed it to the lower end of a bare piece of Apple wood 4 ft. long by about 3 in. thick. At the same time I attached a similar piece of this *Vanda* to a piece of the wood about 1 ft. long, both hung up together in the same house and treated alike in every way. In two years the plant on the long block had reached above the upper end, and the fellow plant on the short bit was equal in height, but not so strong; a good many of its upper roots were necessarily hanging loose. Both were subjected to dry treatment through the succeeding winter. In the spring the plant on the long block produced two spikes, one bearing five, the other four flowers; the plant on the short block made but one spike carrying four flowers. Afterwards I tried similar experiments with this *Vanda*, several *Aerides*, *Scuticaria Steeli*, and other species of Orchids of a like rooting description, and in every case I found the result similar. When the roots had something to attach themselves to they lived much longer, the plants being proportionately stronger and producing correspondingly more flowers. I have seen *Aerides* of different kinds fastened to small blocks of wood and hung up in a house where their roots descended like cords to a length of 3 ft. or more with nothing to lay hold of; in this way they kept on until the top growth almost ceased entirely, the leaves not being

more than half the size of those borne by other plants, with blocks long enough to give the roots sufficient room for extension. I have always found that the roots of all Orchids, particularly such as are of a like character to the kinds above named, will attach themselves to anything that comes within their reach. When hanging perpendicularly I have found that a piece of wood hung at a distance of 2 in. or more to one side of them would cause the roots to deviate from their downward course so as to lay hold of it. Orchids of all descriptions are now more grown in pots or baskets and not so much on blocks as they used to be, consequently there is less need of urging the necessity for some medium or other for the roots to lay hold of, as in pots or baskets there is less chance of their suffering for want of this. Yet it is well to bear in mind that if Orchids are to be kept in a healthy, thriving state for anything beyond the short-lived existence they often have under cultivation, nothing should be left undone to keep life in their roots as long as possible, by, in the first place, seeing that they have suitable material to extend in, and never disturbing them more than is unavoidable. The greater portion of each of the numerous families of Dendrobiums, Oncidiums, Epidendrums, and Lycastes, with most species belonging to other genera, make roots more freely than the section I have particularly spoken of and consequently suffer less through rotting or other disturbance. Yet their close clinging habit to whatever they lay hold of just as much indicates their nature and the repugnance they have to be moved, the obvious course to avoid which is, in the first place, to never use any material, especially peat, that is not of the best and most lasting description. The fibrous matter it contains is the only portion that will keep in suitable condition for the roots to remain healthy within it. Of the large number of species belonging to the freer rooting families I have last spoken of, the majority permeate the soil within the pots or baskets they are grown in to such an extent, that when potting becomes necessary it could not be carried out in the way I have advised for the kinds that make fewer roots by washing the old material out without removing the plants, but in their case not a fibre should be broken that can be avoided. It requires no great amount of observation to see that Orchids collectively, although they will often bear a great deal of bad treatment before being killed outright, still to keep them in health and condition such as they are capable of being grown to, require to have their nature studied, and be treated in accordance with their requirements. They are long in recovering from either neglect or mismanagement.

T. BAINES.

Dendrobium nobile in its innumerable shades is now delightful; it is one of the best of all Orchids still, notwithstanding novelties, and moreover easily grown. If any amateur should perchance have failed with it in a soddened compost of peat, let him now repot it in charcoal and Sphagnum, using as small a pot as will conveniently hold the roots, and enough charcoal and Moss to cover them. A sunny shelf near the glass in a warm greenhouse and plenty of water during hot weather will result in a good show of flowers in two years' time, as this species, like many more, flowers on the two-year-old growth, *D. Cambridgeanum* and *D. chrysotis* being examples of those which bloom on the fresh leafy growths of the current year. Orchid-growing amateurs are generally anxious to know "when their plants will bloom." Now is the time to look for the appearance of or signs of flower-spikes on *Dendrobium Devonianum*, *nobile*, *macranthum* (= *macrophyllum giganteum*) *pulchellum*, *chrysanthum*, *chrysotoxum*, *Vanda teres*, *V. suavis*, *V. tricolor*, *Cymbidium eburneum*, *C. giganteum*, *Phajus Wallichii* *P. grandifolius*, *Odontoglossum citrosimum*, *Alexandrae*, *cirrhosum*, *pulchellum*, *Cattleya Mossiae*, *Warscewiczii* *delicata*, *Warneri*, *intermedia*, *citrina*, *Calanthe veratrifolia*, *Zygopetalum intermedium* (Lodd.), *Phalaenopsis grandiflora*, *P. Luddemanniana*, *P. rosea*, *Cypripedium villosum*, *caudatum*, *Sedeni*, and others.—CANDIDA.

The Scarlet Delphiniums.—Mr. Douglas speaks of these without much experience, I think. There are no doubt sickly plants and poor varieties, but the plate published in *THE GARDEN* (p. 234) is a fair representation of a plant grown near London. That plant, which I saw, was about 4 ft. high, and of a very good scarlet colour. Mr. Douglas says they are not true perennials; probably not. I have seen the plants both in their native country and in cultivation, and my impression is that the best results are to be had from plants raised every year, or at least every two years. We very often lose a plant by supposing that it ought to conform in character to some

other that we do know and possess. It is probable that the best plants are often young ones, which grow freely through the fine open winter in California, and flower the following season.—J. H.

THE GARDEN FLORA.

PLATE CCLXXVI.—MECONOPSIS WALLICHI.

THIS beautiful Indian Poppy has flowered and produced seed annually in the Royal Botanic Garden, Edinburgh, during these last eight years. As to its hardiness, plants of it stood out all last winter on the rock garden, and also in open borders, quite unprotected, and flowered during the summer. Even when the thermometer was down to zero the cold did not apparently hurt it in the least. Well grown plants have leaves from 12 in. to 15 in. in length, bearing a great quantity of pale blue flowers, which open terminally. Separate flowers do not last long, but a few expand at one time. It takes fully a month before they are all expanded at the base, by which time the seeds of the first opened flowers are nearly ripe. Other Indian species cultivated in gardens are *M. aculeata*, *M. nepalensis*, *M. simplicifolia*, and an unnamed species, which, it is hoped, will flower this season. All the above are natives of Sikkim, and found growing at an altitude of from 12,000 ft. to 14,000 ft.

Culture and Position.—Those who may find difficulty in procuring plants of this fine Poppywort may be interested to learn that it may be easily raised from seed sown in spring; indeed, it is biennial in character, and the only way to ensure a good stock of strong plants is by annual sowings. I find the following to be the most successful mode of cultivating it: A piece of ground is prepared by digging in good loam and well rotted stable manure, a two-light frame is placed over it, and seedling plants are put in about March. As soon as the plants are fairly established the sashes are removed (unless the weather is frosty), and throughout the summer the plants are well supplied with water. During the following season, in April or May, they will have become large plants, often 2 ft. to 3 ft. in diameter, and are then removed to where they are wanted to flower. This may be readily done without checking them much, as they form such a large quantity of fibrous roots that usually a good ball of soil may be had with them. They are thus grown on as quickly as possible, treating them like biennials. They do not all flower, however, during the second year; many require three or four years before flowering, and plants may be kept in store pots for five or six years without showing any tendency to flower, but they are never nearly so fine when planted out after being cramped in this way. After flowering they all die.

JOHN SADLER.

[Our plate, which was drawn by Mrs. Duffield, represents a portion of a plant which flowered last year in Mr. G. F. Wilson's garden at Weybridge.]

The Carnation and Picotee.—We are now busy putting these into their blooming pots, an operation which ought not to be delayed much after the middle of March. Indeed, if the weather is mild we usually commence about the last week in February, and finish the main collection by the end of the first week in March. Those intending to purchase plants should lose no time in doing so, as they suffer if the potting is delayed much longer. Many place the pots containing the newly-potted plants out of doors as they pot them. No one would be likely to do this from choice, but it is often necessary to do so owing to the want of room in frames and cool glasshouses. It cannot be possible that plants turned out of doors (and which may be soaked with cold rain or snow before they are established) will be able to compete with those that have been nurtured under glass until they are well established. Mr. Dodwell, of Clapham, does not possess sufficient glass shelter for his newly-potted Carnations, but he finds a good substitute in low tents formed of hexagon garden netting. This is a strong well-made material, which affords the plants sufficient light and throws off rain. The potting material for Carnations, which must have been described in previous numbers of *THE GARDEN*, should be mixed two or three months before it is used. I cannot too strongly recommend the yellow ground Picotees, raised and sent out recently by Mr. Turner, of Slough; and some yellow selfs, of which *Chromatella* is the type sent out by Mr. Ware, of Tottenham. They are not only novel, distinct, and pretty, but come in when the main collections are over.



MECONOPSIS WALLICHIANA

From the Poppy

Monopsis Helicoides

Seed may be sown in April. It is best to sow it in pots or pans, and place them in a close frame. They must be protected from too much wet, and the soil must not be allowed to get very dry; this would probably kill the plants while they are pushing through the ground. Shade also from very bright sunshine. One mistake that beginners make in the cultivation of the Carnation is allowing the plants to become dirty, either from the attacks of green fly, or by allowing weeds or green mould to grow. The green fly is certainly troublesome all through the growing period, and when in flower black thrips spoil them; all these insect pests must be destroyed as soon as observed.—J. DOUGLAS.

TWO LITTLE-GROWN TREES.

(UNGNADIA SPECIOSA AND PAVIA (ÆSCULUS) MACROSTACHYA.)

THESE are both beautiful trees, natives of North America, the former scarcely heard of in the gardens of this country; the other,



Ungnadia speciosa.

though not so rare, not nearly so much planted as its merits entitle it to be.

They are botanically nearly allied to each other, and are members of the Horse Chestnut family, a family from which we derive many of our finest ornamental trees and shrubs. The Pavias now introduced are numerous, and would in themselves form a fine plantation, so varied are they in size and habit as well as in leafage and flowers. Several kinds were once procurable from some of our large tree nurseries, but the want of demand for them has tended to reduce their number to two or three of the showiest kinds. *P. macrostachya* forms a tree varying in height



Pavia macrostachya.

according to situation and soil. It has compound leaves similar to those of the Horse Chestnut, and produces about June a profusion of long spikes of white flowers having long thread-like stamens of a chocolate-brown colour arranged in a brush-like manner.

It is a capital tree for planting in choice plantations, and it makes a fine isolated specimen on a lawn. It may be readily propagated by the suckers or offshoots which are numerous produced in the case of plants of large size.

Ungnadia speciosa is a native of Texas, whence it was introduced to cultivation some thirty years ago, though, as has been already remarked, it is yet scarcely known. It is a deciduous low tree or large shrub bearing long racemes of pink flowers in the manner indicated by the accompanying illustration. As to its hardiness and growth in this country, we have had no experience, though it is spoken of as being a fine tree well suited to our climate, and we hope to hear more of it at no distant date.

W. G.

THE ROSE GARDEN.

PRUNING MARECHAL NIEL.

I THINK that Mr. Fish hits the right nail on the head when he asserts that the *Maréchal* should every year be subjected to a hard course of pruning, hard enough, indeed, to ensure the formation of a fresh lot of wood, treating that which has just borne the crop of bloom as of no further use. In a general way it is easy enough to account for the deterioration in quality of bloom which in most cases takes place after the first two or three years from planting. We will suppose a free young plant to be set out in a glass structure in the ordinary manner. The roots finding a feeding ground prepared with a view to their special wants, and the climate being just what the *Rose* luxuriates in, a long strong growth, oftentimes 20 ft. to 30 ft. long, is made, capable even when properly shortened back of carrying from 100 to 200 flowers of the finest quality. This rod in due time sends forth laterals, but these are, of course, by no means so vigorous as the shoots made the first year, so that already some of that glorious perfection of size, form, and colour which distinguished the blooms the first season is wanting. The next year, unless hard pruning is resorted to, there is a still more sensible diminution of quality; the bloom-bearing shoots grow small by degrees, and beautifully less, until this gradual process of deterioration culminates in blooms so small, so wanting in colour and substance, that the plant, instead of realising the fond anticipations of the owner, grows in the end to be an eyesore, and is removed to make way for something capable of affording more lasting enjoyment.

This, I think, will be found to be the true history of the decline and fall of the *Maréchal* in most gardens, and it is a fact that where his noble qualities should enable him to reign without a rival he has to make room for subjects in every way inferior. Would this be the case were the old bearing wood cut away directly after blooming and every means taken to encourage a fine healthy vigorous growth? I do not think so; every experience tends to prove that the healthy existence of the *Maréchal* depends upon the removal of the wood, and that when fresh fine young rods are made from the base of the plant every year, but few signs of decrepitude will declare themselves, and the flowers will not, as a rule, fall off in quality. Mind, I am speaking of culture under glass only, for in the open air, as Mr. Fish is careful to point out, the young growths are certain to be chilled, and then good-bye to next year's crops of bloom. And then, again, I am doubtful whether in cold localities the wood would ripen sufficiently if the plants were cut back after flowering. Under glass these objections have no force; there is plenty of time for a plant, after blooming, to make rods 20 ft. long and ripen them well off by the autumn.

One occasionally hears of a *Maréchal* that holds out well, that yearly yields an enormous amount of fine blooms, and that of the two rather increases than diminishes in vigour. When this is the case it will, I think, generally be found that the plant enjoys an exceptionally free root-run, thereby inducing superabundant vital energy, resulting in the formation of strong sucker-like shoots from the base. These impart to the tree a renewal of life, and render the work of the grower easy, for he has only to make room for them by taking out all old or weakly wood. Where the *Maréchal* has, as is often the case, but a limited area for the roots to work in, he does not exhibit this exuberance of energy; young growths are not formed, and the laterals get more and more deficient in stamina. Whenever a plant has come to a standstill, and the owner is, perhaps, hesitating as to whether he shall commit it to the flames, let me plead for a further term of life. Let the knife go to work freely amongst the old, worn-out, stunted branches, cutting them boldly away, and then, as soon as young shoots declare themselves, supply the roots with plenty of good food, and keep the young branches free from insect pests, so that growth may be free, healthy, and vigorous. More than once I have known an apparently worn-out *Maréchal* re-endowed

with the vigour and elasticity of youth by such means, and what has succeeded in one case is worth trying in another. J. CORNHILL.

Marechal Niel.—I bought a plant of this at a nursery near Harrow, and I should say it was about three years old then. It is on the Brier, and is in the most vigorous health; in fact, almost too vigorous for convenience, for it is in a mixed greenhouse, and it interferes with the Vines. I have seen branches taken away in wheelbarrows to give fair play to the Vines. We have had from 500 to 1270 Roses on it. We give it soot for manure, and once or perhaps twice a year a top-dressing of stable manure. It is planted in a pit in the greenhouse, which is 20 ft. long and 12 ft. wide. It is a pity it has not more space in which to ramble. I have a President Rose plant in the pit which also flowers well.—MARY A. GILLUM, *The Red House, East Moulsey*.

Fine Marechal Niel.—It may interest some of your readers to know that I have a plant of this Rose (not on its own roots) in a cold greenhouse 50 ft. long. It covers the whole house from end to end; its roots are in a large box about 6 ft. by 4 ft. Last season I gathered 250 blooms off it, and the year before quite 500 blooms. It has been in this greenhouse (which has a northern aspect) 3½ years, and has been repeatedly cut back. The stem is quite 9 in. in circumference, and one side branch is 7 in. in circumference. Although the stem was covered with ice in the severe frost in January, it does not appear to have suffered.—T. P. M., *Waterford*.

Why Marechal Niel is Short-lived.—I have noted this fine Rose under glass here and in various parts of Ireland, England, and France, and have thought often why it is invariably short-lived either on the Brier, or Manetti, or on its own roots, and have come to the same conclusion as Mr. Fish, who, with his usual experience, in the last issue of *THE GARDEN* attributes it to want of pruning, over-cropping; in fact, to exhaustion. This is in accordance with common sense. Growers are often satisfied with from two to twenty blooms on other luxuriant Roses, but have no compunction in cutting 200—nay, 1000—from Marechal Niel, and with the inevitable result—death either the following year, or a lingering existence, and comparatively worthless blooms. The remedy, as Mr. Fish points out so graphically, is plain.—W. J. M., *Clonmel*.

ROSE CUTTINGS IN FEBRUARY.

I HAVE so much enjoyed most of the "Garden Thoughts" which our Rose Canon has given to us, that it is with much regret that I venture to criticise the remarks on Rose cuttings in February on page 249. Fortunately, the writer is not recording his own experience, but that of another Rosarian. Still, I am of opinion the advice given, if followed, will lead to far more blanks than prizes. To put in Rose cuttings, either in the open air or under glass, in February is to invite failure. It is just possible that white heat enthusiasm might make Rose cuttings root at any season, but February is just about the worst month in the year to put in Rose cuttings. The sap is already in active motion upwards, and it is seldom that a sufficiency of it can be reversed to form a callus, to say nothing about roots afterwards. To anyone who may think seriously about going in for February or March cuttings I should emphatically say, don't; and where is the benefit when they might, with so much greater chance of success, be put in in November, or even October? The earlier, in fact, after the falling of the leaf the greater the percentage of success.

Neither is it wise to make it appear that the rooting of Rose cuttings is so very easy. It is not, as most of our greatest Rosarians have found out long ago. The chief reason why so many more commercial Roses are budded or grafted on different stocks than on their own roots is simply because buds and scions take much sooner and with greater certainty than cuttings root; this is also the experience of most private growers. By all means let us get as many of our Roses back to earth as soon as possible. But the object will not be hastened but rather hindered by underrating the difficulties in our way. Among the greatest of these would be wholesale failures that may readily be avoided, such, for example, as those almost sure to follow quickly on the heels of the insertion of Rose cuttings in February.

D. T. FISH.

Roses on their own Roots.—Canon Hole in his "Garden Thoughts" quotes two correspondents who think Roses better on their own roots than worked, and I am certainly of the same opinion. Years ago I grew annually some hundreds of Roses all on their own roots, and if I had now to get up a stock I should do it from cuttings. Some say it is a slow process, but I believe my plants, though not quite a year old, are better and healthier than rooted

plants twice their age. Good sized blooms six months from the cutting state may be obtained, but twelve months is a short enough time for a Rose cutting to make wood and ripen its buds, to yield from six to nine good blooms. Madame Lacharme is rather a bad grower, but roots easy enough when in good condition.—J. KNIGHT.

SINGLE BANKSIAN AND OTHER ROSES.

CANON HOLE directs attention to these in his "Garden Thoughts" of last week. Are they in the trade in this country? If not, surely the sooner they are introduced the better. I love the double Banksians, only they are a little too much like a Batchelor's Button or a Pyrethrum. Half open single ones would be far more chaste. We grow the double yellow and white, also Fortune's Rose, but have neither of the singles. The white is pleasantly fragrant, but the yellow has little scent. The single yellow and bronzes are pretty, but their odour is most offensive, something akin to bugs, horror of horrors in such a sweet family. The great Rose want of the day is more singles, fragrant single Roses with long tapering buds of the form of *Devoniensis*. One gets impatient on looking back to think how many hundreds, perhaps thousands, of splendid Tea and other single Roses have been thrown away in the pursuit of size and doubleness. The very Roses most useful to the decorator and artist have been lost to our gardens for ever. It is high time that the cry arose for single Roses in plenty of all shapes, sizes, and colour. Probably in the Rose raising and growing of the future we may learn to appreciate the single flowers the most. Dahlia growers have nearly reached this standard. For years every single flower was destroyed, and now we hear of the doubles going to the rubbish heap and the single ones being carefully nurtured and propagated by express; but raisers need not go to such extremes. We have room enough in our gardens for all the Roses they can raise, whether single or double. It would almost be too late now for the Rose Society to offer prizes for single Roses at the great show at Manchester in August, but I trust they will open such a class in their future schedules; I hope, also, to bring the matter before the East Anglian Rose Society. Single Roses might be shown as single flowers, and also as wreaths and sprays; prizes might also be awarded for bouquets and wreaths of single Roses, also for vases. Baskets filled with single Roses with their own foliage only—single Rose table decorations, with nothing but single Roses with their own leaves and branches—would approach the highest perfection in this style of decoration, which raises the art of dining above mere sensuous pleasure into the regions of a fine art that cultures, refines, and gratifies our taste while satisfying our appetites.

D. T. FISH.

Banksian Rose as a Stock.—I do not see how Monsieur André can attribute (p. 208) even part of the success achieved in Rose cultivation in the south of France to the influence of different kinds of stocks. Evidently the luxuriant growth alluded to, and the production of such abundance of flower, are caused by the influences of climate; outdoor Roses have many advantages in the south of France which they do not have in many parts of England. For instance, we are almost free from blight and mildew; the annual growths get thoroughly ripened, and for the most part the soil during the time when the plants are dormant is in a much better state to promote the healthy preservation of the roots than in colder climates where in winter there are much heavier rainfalls. Mostly all kinds of Roses are increased by grafting, whether they are worked on the Banksian or *Rosa indica* major stocks, or are on their own roots, which most of them are; all seem to flourish and make old plants in this climate, and soil canker and decay very rarely overtake them. Roses can be had here outdoors all the year round with a little management as to position and pruning.—S. R., *Cannes*.

Gloire de Dijon.—Mr. Walters tells us that for all general purposes, and bearing in mind its hardiness during recent winters, Gloire de Dijon is the best of all Roses, flowering among the earliest and among the latest, while its grace and beauty are too well known to need comment.

New Garden at Westminster Abbey.—Plans and drawings for converting the burial ground lying to the north-west of Westminster Abbey and adjoining St. Margaret's Church into a garden were placed the other day in Mr. Gladstone's room at the House of Commons. The space now paved with gravestones in various stages of decay and neglect is to be laid out as a flower garden, after the pattern of the gardens in Parliament Square. It appears that a portion of the ground is under the control of the

parish and a portion under that of the Board of Works, and application has already been made to the latter body on the subject. It is estimated that the cost of laying out the ground and replacing the present railing by more ornate barriers will be between £3000 and £4000.

THE KITCHEN GARDEN.

DIBBLING PARSNIPS.

THE advice given in *THE GARDEN* lately to grow Parsnips in deep soil and to give them plenty of room is undoubtedly good, for this vegetable is really useless unless well grown and of large size. A good Parsnip should be long, straight, clean, and, like the long Surrey Carrot, without the sign of a fork. Parsnips like a rich moist soil, but if manure is applied the same season at or near the surface, it has a great tendency to produce forked roots. I, therefore, do not manure for a crop of Parsnips, but sow on ground which has been well manured and deeply cultivated the previous year, the simple winter digging of the surface being sufficient. Both Parsnips and Carrots are difficult to manage on very heavy soils, or I should rather say on some heavy soils. There is also the tendency to scab or brown rust on those as well as on very dry soils. I have adopted a plan in sowing by which I have been able to grow fine clean Parsnips on very stiff and coarse clay; in fact, the nature of the soil suggested the plan; it, moreover, economises the seed, which, however, is no great economy, as it is cheap and light. I begin by rough levelling the ground on the surface when dry with a wooden rake; I then mark it off in lines 18 in. apart and proceed to make holes 18 in. deep and 12 in. asunder in the row with a heavy sharp pointed dibble 3 ft. long with a cross handle at the top, shaking it about until the hole is about 6 in. wide at the mouth. The making of those holes is not such a heavy matter as might be supposed; we managed 100 per hour last year. The holes are then filled up with sifted bog mould, or leaf mould, or any light comestible material, but we prefer the bog. A boy can follow with a basket or barrow and fill in as the holes are being made and the looser the material is put in the better; when the holes are all filled two or three seeds are dropped over each hole, and then half a handful of the covering is sprinkled over each. In this way we have fine crops of long clean Parsnips satisfactory to dig and to cook. I intend to follow the same plan with intermediate Carrots this year. On some soils it is almost impossible to secure a crop of Carrots on account of grub and disease, but we have hopes that some will be obtained by the dibbling process. Carrots and Parsnips are peculiarly suited to bog soils when well drained, and it is marvellous that they are not both cheaper and more plentiful in our markets than they are. On bog lands the weight of Carrots per acre which has been recorded is astounding; that they are successfully grown to some extent is proved by the exhibits which were to be seen in Dublin last autumn.

HIBERNIAN.

JERUSALEM ARTICHOKE NOT GROWING.

IF "P. M.," who hails from Wick, in Scotland, complained of the above there must surely be some mistake, not tuberizing being probably meant for not growing, for I never yet saw the place, either in Scotland or England, in which Jerusalem Artichokes would not grow, though I have known cases in which the tuberizing was a sorry affair. They neither like clay nor shade, and as your correspondent's soil is the first, and perhaps the situation shady, that may account for the failure. Such soil would be vastly improved for Jerusalem Artichokes by a good dressing of old mortar rubbish, road sand, charred refuse, decomposed garden rubbish, well rotted hot-bed manure, spent Mushroom, dry leaf mould, or farmyard manure. If a sufficiency of any of these cannot be had for a dressing all over, place a few inches under, around, and above the Artichokes at planting. The sooner they are planted the better, if not already. I prefer autumn planting for these tubers. When the crop is lifted, say in October or November, prepare the ground and plant afresh. They should be planted in rows 5 ft. or 6 ft. apart to do them justice, using whole tubers, and placing the first 18 in. to 2 ft. asunder in the rows. The tubers should be inserted from 9 in. to 1 ft. deep. The best way of planting is to dig the ground as this process proceeds. Put in the first row square 2 ft. or 1 yard from the outer edge of the ground. Then dig on to the next row and so on till the planting is finished. In dry soil a good wide open trench should be

kept in digging. This should be cut down straight with a line on the dug edge at the proper intervals, part of the loose earth thrown out if need be, 2 in. or 3 in. of such compost or manures as already described placed in the base of the trench, the tubers set on this, and covered with the same or the free soil removed. Then unless the soil has been dug in the autumn or winter, and is so mellowed into fineness, the first spit should be carefully broken before or during its being placed over the row of Artichokes, for these, like all similar plants, like a mellow soil to grow in. The earth between the rows may be laid up rough. The site can hardly be too sunny. The plants will spring up like giants, and possibly make from 6 ft. to 8 ft. of stem in the summer. Hence they will mostly keep themselves clean after the first month or so. Before the tops reach 1 ft. high some earth them up. When this is done the crown of the ridge should be left wide to retain all rain, as during the growing period these plants are greedy of water. As the tubers, however, seldom rise to the surface, it is not needful to earth them up, though possibly the practice helps to steady the stems, which in exposed places are apt to be wrecked by the wind.

D. T. FISH.

SEASONABLE WORK.

Kitchen Garden.—The time is now at hand, and before these lines appear in print it may have arrived for pushing on the general sowing of Peas, Beans, Parsnips, Onions, Early Carrots, Turnips, Leeks, and Radishes, also the planting of Jerusalem Artichokes as back rows where they will not shade other crops, and autumn-sown Cabbages in extra large quantities to make up for the wholesale slaughter of Savoys, Cottager's Kale, Brussels Sprouts, and Broccoli. In this locality the only green that has passed unscathed through 36° degrees of frost is Veitch's dwarf-curved Borecole, and as this is one of the most delicious spring vegetables that it is possible to grow, it is our intention in future to give it a much larger space than we have hitherto done. When the soil is in good working condition plant out the most forward autumn-sown Cauliflowers in rather deep drills and protect with Yew or Spruce branches. Early Erfurt is one of the best for growing under cap glasses. Take care of the weakest plants for continuing the succession until spring sowings come in. Fill up winter beds of Lettuce and make fortnightly sowings of Paris Cos. Transplant the remainder of winter Onions, also Peas that have been raised under glass; stake at once for shelter and sow Spinach between the rows. Where several of the strongly recommended kinds of second early Peas are grown side by side for trial or exhibition, the middle to the end of the month is a good time for sowing, after which proved favourites should be sown fortnightly throughout the season. We generally confine ourselves to one or two good Marrows, and make a successional sowing when the last show through the surface of the soil. Early Savoys, Brussels Sprouts, Cottager's Kale, and Borecole sow thinly and protect from birds. Look well to early Potatoes in course of preparation for planting. Select nicely started sets from the shelves or floors and get them into the ground when it is in good condition. In cold, low gardens subject to spring frosts avoid early planting, also strong manure. Place the sets in very shallow drills and cover with steel forks. Prepare ground for new plantations of Seakale and Rhubarb, also for Asparagus. For the latter the soil should be repeatedly turned over and pulverised, planting being deferred until the young yearlings have started into growth.

W. COLEMAN.

Sprouting Seed Potatoes.—There is little doubt that much of the substance of seed Potatoes is wasted by allowing them to make premature growth in heaps at this time of the year, and as it is useless to expect a full crop from half exhausted seed, I would strongly urge on every grower the importance of losing no time in getting seed Potatoes spread out in thin layers. In the case of all our early choice Kidneys, we start the sets in shallow cutting boxes, with a little fine soil under them, just sufficient to encourage the tender rootlets a little; they are then placed in a light cool house where they form dwarf sturdy shoots, and when about 1 in. or 2 in. long are finally planted out by drawing drills and carefully placing each set with roots entire in the trench, covering with fine soil; thus treated, they well repay the extra trouble. For main crops in quantity it is not possible to adopt this system, but we avoid sprouting by spreading all the sets out as thinly as possible on the shelves of Apple rooms, or floors of any building in which they are secure from frost; they then make short sturdy shoots by planting out time.—J. GROOM.

Scotch Champion Potato.—I notice in your issue of 26th February (p. 244) that Messrs. Carter and Co. claim to have received from the Royal Horticultural Society a certificate for Carters' select Scotch Champion Potatoes. As it is well known that Mr.

Wm. Nicoll, now of Arbroath, Forfarshire, was the raiser of that variety, I think it ought to be known as Nicoll's Scotch Champion," and I hereby protest against Messrs. Carter calling it by their name. We all know that if a few tons of any variety are gone over a quantity of finely shaped and better quality of Potato can be selected; but because a firm may do that I cannot see that it should entitle them to call the entire variety by their name, as this appears to be an attempt to do. Another phase of the question is: What is the value of such certificates from the Society? and should it issue such certificates?—DUNDONIAN.

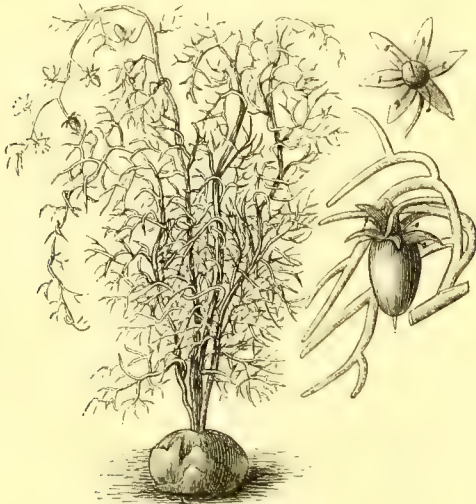
Brown Cos Lettuce.—I do not think there is a hardier or better Lettuce grown than the old black-seeded Brown Cos. We are now planting out quantities of it, that have been sheltered in frames during the winter, at the foot of walls with south aspects, where a sloping bank of rich soil is placed, to hold two rows of plants; for at no time of the year are they more appreciated than in spring and early summer. I have tried many kinds of Lettuce, but for the greater portion of the year a thoroughly blanched heart of a Brown Cos will be able to hold its own for crispness and flavour with any kind yet tried.—G. J.

THE FLOWER GARDEN.

THE TWINING BOWIEA.

(*B. VOLUBILIS*.)

THOUGH by no means showy, this bulbous plant is remarkably interesting from a botanical point of view, as it is one of the very few of the Liliaceæ having a climbing habit. As may be seen by



Bowiea volubilis.

the annexed woodcut, the plant is devoid of foliage, but its function is probably filled by the numerous fleshy terete branches which in old plants form a dense mass, rising several feet in height, proceeding from the apex of a large Turnip-like green bulb, which is half buried and half raised above the surface. The flowers are small and inconspicuous on account of their green colour, but they are produced in abundance when the plant is grown under glass. It is a native of the Cape of Good Hope, and is an excellent representative of the arid character of the vegetation affecting that region. In this country it is a hardy perennial when planted in a sheltered situation against a wall, and if of a southerly aspect, all the better. It should not, however, be nailed to the wall, but be allowed to ramble over dead branches placed near it. It may be readily propagated by seeds, which under glass are freely produced in this country. Seeds of it may also be procured from such large seed houses as that of Haage & Schmidt, of Erfurt. W. G.

Saxifraga oppositifolia.—This lovely spring flower does not bloom well in the shade. It appears to require a sunny situation to ripen its flowering stalks. One large plant of 2 ft. square has not a dozen flowers where it is shaded by a wall, whereas plants on the open rockery are one mass of purple.—BROCKHURST.

CROCUS BULBS NOT COMING TO PERFECTION.

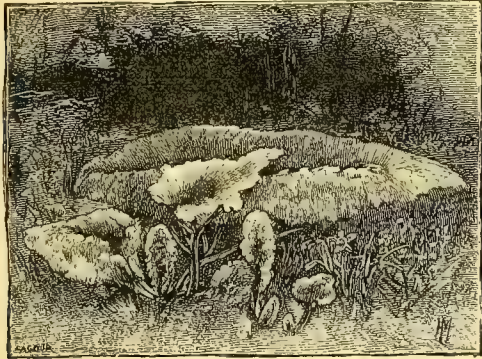
IN answer to "Giroffe's" appeal to me about this vexatious matter, so graphically described at page 272, I believe it may proceed from either of the three following causes: Injudicious lifting and storing of the bulbs, excessive drought after potting, and the fleetness of the pots used. No Crocus, nor other bulb, should be lifted until its foliage is quite withered and dead, and even after this has taken place the natural home of the bulb is the ground, and not the garret, cellar, bag, or drawer of the bulb merchant. One can hardly look at Crocuses or other bulbs lying in masses in warehouses, or in large boxes and parcels on transit by ship or rail, without trembling for their safety and security. The bulbs frequently are packed and unpacked again and again, and I have even seen huge piles of Crocuses in florists' windows rivalling in bulk and size those of sugar in the grocers'. Here, exposed to frost and sun, in a dry atmosphere for months, is it any wonder that their vital power is lowered and their flower germs so weakened, that instead of being developed into beauty they have only strength enough left to form ghastly cascades of dead bulbs. I am the more convinced that the failure to flower Crocuses in pots often arises from such causes from the simple fact that such failures have never happened in my experience to Crocuses lifted from the ground and potted at once. Potted Crocuses are also often kept too dry. Of course all excess of water is to be guarded against, as bulbs in a semi-dormant state can make little use of water. They can, however, make some. The whole surface of the hard corm of the Crocus is slightly pervious. Dried to excess before potting, the corm may be benefited somewhat by being surrounded with a moist medium. The Crocus, unlike many other bulbs, is a native of this country. It is accustomed to a moist bed throughout the year. Its position in a pot perched up near to the glass with a layer of porous crocks under it is therefore vastly different from its sappy surroundings in a state of nature. And I really believe that the failures described by "Giroffe," and with which most growers of bought bulbs of Crocuses are all too familiar, arise from drought.

Fleet potting is another cause of failure. Place Crocus bulbs in a 3-in. or 4-in. pot with 1 in. or more of drainage and 1 in. or more of soil under it, and the Crocus is up into the light before it has had time to properly organise its floral forces. Hence they show prematurely, and therefore rot off, or else perish in the process of a forced development. Our forefathers were far wiser than us in the matter of bulbs. They had pots for the deep-rooting sorts as ugly of form as a section of a drain pipe. But the depth was philosophical and successful for bulbs, which is far more than can be affirmed of many of our elegant, but shallow pots. This objection is confirmed by observation and experience; few things have astonished me more than the strength and vigour of Crocuses deeply planted either by accident or design. In forcing Crocuses or growing them in pots, I have mostly been most successful by adding to the apparent depth of the bulbs 1 in. or 2 in. of Moss. This has various other advantages, such as keeping the soil moist and shading the tips of the embryo flower from the light. Direct sunlight even early in the season seems almost too much for the flowers, and may cause them to wither when exposed to it so close to the roots as in the case of Crocuses in small pots. By the way, can "Giroffe" or any of your readers give their experience on the forcing of Crocuses and Snowdrops, or explain why it is that as a rule neither are forced well? D. T. FISH.

Laced Polyanthes.—Many have been unsuccessful in the cultivation of these beautiful spring flowering plants. Mr. George Smith, of Edmonton, who is quite an enthusiast in their culture, has been very unsuccessful with them during the last season. He has lost most of his fine varieties, and those that remain do not look well. He believes that the severe frosts which we had in January were the cause of the disaster, and I quite agree with him; but why are his plants so much injured while in our larger collection at Loxford Hall not one is touched? I believe that the good condition of our plants is owing this season at any rate to early potting, coupled with the fact that the plants were healthy and clean when taken up from the open ground. They ought to be potted in August, or not later than September; this is the time when most of the best growers in the north of England divide and pot their plants, and certainly no better would be produced than those to be seen annually at the spring exhibition at Newcastle-upon-Tyne. Mr. Smith's plants were not more exposed than ours, as the collection here was placed on a stage, where the whole outer surface of the pots was exposed to the weather without any covering except the snow when there was any. My advice, therefore, is to pot early in the autumn, and to keep the plants clean and healthy. They cannot bear coddling. We remove the frame lights freely at all times.—J. DOUGLAS.

THE GIANT FENNEL (FERULA) IN SPRING.

WE show here the early spring aspect of one of these giant herbaceous plants when rising from the ground with those wonderful plumes which look so noble when properly placed in a garden. It is as if some great Filmy Fern was sending up its plumes. Where bold spring flowers are naturalised or planted in colonies in a tasteful manner the presence of a group of these fine-leaved, hardy plants will be valuable, as indeed they will be in various positions where their roots need not be disturbed. They are among the true hardy plants of the northern world, never, so



The Giant Fennel.

far as we have noticed, suffering from any cold. Their fine forms in summer or autumn, when they throw up their flowering-shoots to a height of 10 ft. or so, are remarkable enough; but it is their appearance when breaking up in spring that charms us most. It is not many years ago when these plants were never seen out of a botanic garden, and very often not seen there, but now their value begins to be understood.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Aquilegia canadensis and Primula capitata.—It is but fair to Mr. W. Thompson, of Ipswich, to say that what "Brockhurst" calls (on page 277) my beautiful variety of *Aquilegia canadensis* is nothing more than the product of Mr. Thompson's seed of *A. californica hybrida*, which certainly is a very fine and showy Columbine, and, like all other Columbines which I have ever tried, as hardy, as far as frost is concerned, as a common Primrose. *Primula capitata* has not survived the winter in my garden. The plants grew on late, made large succulent crowns, and were too ambitious to be evergreen. After apparently surviving the frost, they have lately broken off at the shank, just in the same way as backward plants of *Senecio pulcher* do, though the latter spring up again from the roots. *P. capitata* is undoubtedly hardy. I saw, this week, several healthy plants of it, which have been out all winter in strong soil on a flat border, in the nursery of Mr. Whittaker, of Breadsall, near Derby. Those who can spare an hour or two in Derby will find this nursery well worth a visit. The collection of rare hardy herbaceous plants is most interesting, and Mr. Whittaker, who is a good botanist, takes great pleasure in showing them.—C. WOLLEY DOD.

Wallflowers and the late Frost.—"J. S. T." (page 232) says: "My Wallflowers are not at all injured this season, though the two previous winters nearly annihilated them." This is certainly rather singular, so far as I can learn, as the winter just passed was the severest of the three preceding. If "J. S. T." said he lived in the southern counties of England or Ireland the singularity would not be so conspicuous. I always have a large number of Wallflowers—double, semi-double, and single, and of every colour; every double that the snow did not protect has been killed; and the same is true of the majority of the older singles, though the latter are much harder than the former. A curious feature is that in several instances many branches on singles are killed while one beside is quite safe on the same plant. Why is this? Perhaps your correspondent, Mr. Brockbank, who admires these flowers so much, would give us his opinion, and say how he fared in Lancashire.—W. J. M., *Clonmel*.

Campanula thyrsoides.—Few people know the value of this plant on a rockery, and probably few have ever attempted to grow it. It is a native of the high Alps and a biennial, but, like

Saxifraga Cymbalaria and *Linaria alpina*, it becomes almost a perennial in favoured places. I brought some ripe seeds home from the Heu Thal, in the Engadine, six or seven years ago, and after raising and planting the produce out, I have had, without the least care or attention on my part, from twenty to thirty self-sown plants of it every year on my rockery since. In the first year of its growth it forms a pale green rosette, with a paler midrib, something like an elongated *Pinguicula*, and the next year it throws up its odd looking stalk, on which the closely-set green flowers cluster in shape like an inverted bottle. The flowers have a very strong scent, and they open from the top downwards. It is not in the least particular as to choice of soil or locality. It grows in sand, loam, or peat, and comes up in all sorts of odd places. Sometimes it appears singly, and sometimes in nests of three or four together (I once counted eleven stems from one set of roots). At one time it springs up in the full blaze of sunlight, and at another on the north slopes where the sun never shines. Sometimes it grows on the gravel walks, and at others it plants itself in cavities under stones or roots; but wherever it appears it forms a striking object, and is a most welcome addition to home-grown Alpines.—J. M. BURTON, *Hilfield, Gainsborough*.

Aucuba-leaved Daisy.—This is a truly pretty and attractive little plant, and one that may be made good use of for decorative purposes at this time of the year. The foliage is distinctly blotched with yellow, the golden tint being sufficiently pronounced to render the plant really effective. Although commonly classed amongst hardy subjects, this variegated Daisy is not capable of resisting uninjured periods of inclement weather, and often dies off wholesale; hence the reason why it is but little seen in gardens generally. Afforded, however, the welcome shelter of a glass roof, it finds itself quite at home and flourishes with but little care on the part of the grower. The best way to utilise this Daisy is to establish it well in 2½-in. pots, when it forms neat tufts of pretty cheerful variegation and imparts a lively appearance to groups of miscellaneous plants when employed in the form of an edging to them. My earliest recollections in horticulture are connected with the Aucuba-leaved Daisy, for it was largely used in the manner above indicated in an extensive trade establishment, where it met with a ready sale at remunerative prices. It is a plant that affords a considerable share of enjoyment for the expenditure of a very small amount of labour, and is well worthy of the attention of those engaged in floral decorations.—J. C., *Byfleet*.

Zinnias and Helichrysums by the Sea.—I agree with correspondents who have lately written on Zinnias both as to their beauty and their ability to withstand a dry sea-side air, where there is hot sun and little shade. But from experience I must say that a considerable amount of labour will be saved, as well as avoiding the difficulty of becoming root-bound, by sowing them in the open border where they are to remain. They should have a southern exposure, and should be sown the first week in May in shallow drills about 15 in. apart, and as much asunder in the drill, well



Flowers of Helichrysum.

watering them in dry weather. I have tried them for years, and have succeeded in obtaining a fine harvest of flowers to cut from a border 8 ft. wide and 10 ft. long. Nothing pays by the sea-side better than Zinnias, and the *Helichrysum* is almost as good, but it should be sown a month earlier.—J. E.

Inferior Bulbs of Liliun auratum.—Amongst imported bulbs of this Lily there are many damaged or partly decayed ones which are doubtless often thrown away, whereas if a little attention was paid to them they would flower equally well as more promising looking bulbs. Last season I had a great number dis-

carded as useless, but, being unwilling to throw them away, I resolved to give them a trial. First of all I removed all the decaying portions, then when potting surrounded the bulb with dry sand, and also filled with it any spaces caused by the removal of decayed scales, and when this was done I treated them just the same as if they had been sound. The dry sand seemed at once to arrest decay, and by the flowering season it was difficult to distinguish the good from the bad bulbs, but I must admit on examining them in the autumn that I found many of the decayed bulbs had smouldered away after flowering.—H. P.

Lily Bulbs.—All that Mr. Sturtevant states (p. 257) has been long ago both stated and, better still, illustrated in *THE GARDEN*. As he says, in *Lilium superbum* and *L. canadense* a new bulb is formed every year, but the old bulbs live also—a string of bulbs, annual if you will, but produced upon a perennial rhizome or root-stock. In *L. pardalinum* the scales are rarely conglomerate in bulb form, but clothe the rhizome in a way resembling a branch of *Araucaria imbricata*. No doubt *L. superbum* makes a new bulb every year, but this annual bulb is simply the growing point of a rhizome perennial, as is the root-stock of a Peony or a Rhubarb root.—F. W. B.

Tussilago fragrans.—I am surprised at the enquiries that have from time to time appeared in *THE GARDEN*, like that of Mr. Burney's last week, as to the cultivation of this easily grown plant. With me it grows and flowers luxuriantly—too luxuriantly, in fact—under a Yew and Lilac, at the north side of a wall, in a slightly raised bed adjoining a gravel path and a plot of asphalt, for, not only does it invade the gravel walk with its flower-stems and leaves, but actually pushes them up through the asphalt in its determination to grow. The soil I use is good ordinary garden loam, rather strong.—J. M. B.

—Possibly Mr. H. Burney's plants are overcrowded or over-shaded. Having been for twenty years in one place, unless they have been thinned out, it is almost impossible the crowns can have strength left to flower, for this *Tussilago* is a wonderful plant to increase. If he would thin out a few patches and place them in a fresh place these would probably bloom the following season. I have often met with this plant too thick to flower. It may also have too much shade. It grows well in the shade, but flowers best in rather sunny places. The soil seems all right, and the *Tussilago* thrives well on clay. I have, however, seen it grow and flower remarkably well in sandy loam. Its fragrance is so agreeable, that it is a pity this curious plant is not more generally cultivated. The worst of it is that it becomes a troublesome weed in most gardens. The best place for it is the home wood or wild shrubbery; it should, however, have an open place to cause it to flower well. I have never known it bloom freely if at all overhung by evergreen trees or shrubs.—D. T. FISH.

Lilium neilgherrense.—A peculiarity I have noticed in this species may be of interest. It is this—when the bulb commences to grow the flower-spike (instead of growing upright, as in other Lilies) will as soon as it leaves the top of the bulb turn to one side and penetrate deeper into the soil than the point from which it sprang and when confined in a pot will often twist around the sides of it as if endeavouring to escape, and finally appear above the surface at the extreme edge. This peculiarity is, as has just been stated, confined to *L. neilgherrense*, and even of that species, not more than half, as a rule, behave in this way.—ALPHA.

Lewisia rediviva.—How is this plant to be cultivated? I have received a few from North America, and, as I have tried it before and failed, should be glad of the experience of any who have succeeded with it. I turn to two great authorities—Mr. Backhouse, of York, and Mr. Ware, of Tottenham. The former says "It prefers moist peaty soil in the shade;" the latter—"It requires a hot situation in a dry stony soil." DELTA.

Hardiness of Veronicas.—Allow me to say, in answer to "W. J. M." (p. 194), that our Veronicas have been killed back as far as the old wood, and I am afraid they will not recover. The last frost (10°), on February 28 and March 1 has had more effect on them than the previous ones, owing to the sap having begun to rise.—JOHN A. CALTHORPE, *Summerville, Waterford*.

Narcissi in Pots.—The finer Narcissi, such as *N. Horsfieldi*, *Emperor*, and *Empress*, are well worth growing in pots for early flowering in a cool greenhouse. For this purpose none excels *N. Horsfieldi*, the strongest grower of all the Daffodils and the most beautiful. *Empress* is merely a large variety of *Horsfieldi*, so far as I can judge, and very frequently *Horsfieldi* grows even larger than *Empress*. These Daffodils should be grown on in pots from year to year, as they are finer the second year than the first. If allowed to die down in the same pot, and in autumn to have a careful repotting

without much disturbance of the roots, a good ball of the old earth being left around them, they will grow most vigorously the second year. A single bulb of *Emperor* treated in this way has four flower-stalks this year, and it is the same with the others. This remark will, I think, be found also to apply to the *Polyanthus Narcissus* bulbs. If such fine varieties as *Grand Monarque* and *Bazelman* major are turned out into the open ground they are seldom worth notice afterwards, but if grown on a second year in fresh soil I believe they would be even finer than before. We have a pot of *N. Burbidgei* now in bloom, and which failed entirely to flower last year; we have simply grown it on, and one bulb has grown to four flower-stalks. This is an exceedingly beautiful *Narcissus* for greenhouse purposes. *N. Bulbocodium* we grow largely and repot from year to year.—BROCKHURST, *Didsbury*.

NOTES FROM CORNWALL.

Asplenium Trichomanes (or Maiden-hair Spleenwort).—A perfect little gem is this evergreen among British Ferns, and one that should be grown in every collection. It grows naturally in the crevices of walls or rocks, I have never met with its two or three varieties wild, including *incisum* and *cristatum*, although I notice them offered for sale; this little species is well suited for Wardian Cases on account of its size, and contrary to the usual rule shade is not essential although preferable.

Lastrea æmula (or Hay-scented Buckler Fern).—This is another native of the damp sheltered woods of the South of England and Ireland. It is very abundant in many places around Penzance; hence my reason for directing attention to it as it is an evergreen Fern well suited for pot-culture, its drooping and crisped appearance rendering it a favourite.

Cordyline australis.—This noble plant is perfectly hardy here, several examples of it having withstood the severity of the past winters. Specimens of it about 10 ft. high may be seen in the garden of the Rev. W. W. Wingfield, at Gulval. It is an extremely graceful and ornamental plant, one that will not bear transplanting except when very young.

Ficus repens.—This pretty little trailer has, as Mr. Groom surmises (p. 256), survived the past winters here for many years. I know of one garden in which it is used as a wall climber, and with excellent effect.

Petasites (Tussilago) fragrans.—I know that this plant does not always flower out-of-doors in many places, no matter how good the soil and situation may be. I would recommend Mr. H. Burney (p. 263) to grow a plant or two in the greenhouse to see for certain whether it would flower or not; the usual soil where it is found growing most luxuriantly is very light.—W. ROBERTS, *Penzance*.

Cement for Hot-water Pipes and Tank.—In reply to "J. A." (p. 160) I may state that glazed earthenware pipes may be effectually stopped with Portland cement, using about one-fourth cement to three-fourths of coarse and clean sand. The best sand for the purpose is that dug out from below gravel, where such a formation exists, as it is all grit and is free from impurities of all kinds. It is astonishing the difference in work done with sand of this description and that where fine or dirty material has been used. On the one hand, the mixture becomes as hard as stone itself, and appears quite impervious to the assaults of the elements; on the other, it is always crumbling, and is a continual source of annoyance to the owner. A hot-water tank may be constructed of bricks lined with cement, but care must be taken to have it constructed early in the summer, so that it gets perfectly dry by the autumn. The interior should also have three coats of cement. A cement tank properly constructed will generally hold water well enough; still there is always a liability to leakage, and when once a leak declares itself there is a great difficulty in stopping it thoroughly. Advising conscientiously, I would say employ a galvanised iron tank, which will never give out, and, taking all things into consideration, is about the cheapest kind of receptacle that can be employed. With respect to the glazed pipes, unless they can be laid on the level and firm ground, I would counsel the employment of cast-iron ones as being more economical in the long run.—J. C. B.

The Russian Sunflower.—The "Mammoth" or "Russian" Sunflower is one of those plants which are periodically "pushed" and recommended as furnishing not only the best food for poultry, but also excellent fodder for cattle, and always ready kindling material for the kitchen stove besides. I have tried it, and would not take three acres of Sunflowers for one of Indian Corn. My hens prefer the Corn, my cows the Cornstalks, and the cook the Corncocks for kindling material. Farmers, as a rule, know a good thing when they see it, and when a crop has been recommended as persistently and as long as Sunflowers without finding more favour there is generally some material defect about it.—Dr. F. M. HEXAMER.

PROPAGATING.

Propagating in Sand and Water.—The busy season for working up a stock of many kinds of soft-wooded plants employed for open-air decoration having now arrived, it may not be out of place to recall the merits of this system of propagating. The great object at this time of the year, when space is so valuable, and a great deal of work has often to be got through in a little time, is to adopt a method of propagating soft-wooded subjects which may at the same time be rapid, easy, and efficacious. All these points of merit can be claimed for the sand and water method, and the great wonder is that, considering its simplicity and the time saved by its employment it should not be more universally adopted. All that is required to carry out this system is some ordinary flats which are to be filled nearly to the rim with fine sand. The cuttings are then inserted, and the pan is filled up with water and placed on a brisk bottom heat. The advantages of this sand-and-water plan consist in the rapidity with which the cuttings strike when subjected to a high temperature, such things as *Alternantheras* and *Verbenas* being ready to pot off in ten days from their insertion, the diminution of labour, no tedious crocking of pots being necessary, no shade being required—in fact, the more sun the better, and the ease with which the cuttings may be potted off, for they can just be drawn out without in any way injuring a fibre.—J. CORNHILL.

Lilies from Seed.—In reply to Mr. Falconer (p. 255) I wish to say that freshly gathered seeds of *L. auratum*, sown as soon as ripe, germinate in six months, and flowers of its seedlings, if liberally treated, may be expected in from three to four years. I once saw a large bed of *Lilium auratum* from home-sown seeds which had been thinly scattered on a deep rich Vine border three years previously. When I saw them they were in bloom, and had never been transplanted or cultivated in any way except that a covering of manure was put over the bulbs every winter. Mr. Taylor who, as gardener to Mr. McIntosh, of Duneeven, Weybridge, may be supposed to know something of Lilies and their culture, in a letter to a contemporary says: "We have *L. giganteum*, sown in 1876, expected to bloom in 1883; *L. Humboldtii*, sown in 1877, expected to bloom in 1881; *L. pardalinum*, sown in 1876, did bloom in 1880; *L. dalmaticum*, sown in 1878, expected to bloom in 1882-3; *L. Krameri*, sown in 1877, expected to bloom in 1883. *L. tigrinum* and *L. longiflorum* from bulbets of the stem take from three to five years to attain flowering size. Three to five years seems to be the average life of Lily bulbets from seed to the flowering stage whether propagated by seeds, bulbets, or scales. I trust other cultivators will give Mr. Falconer the benefit of their experience.—F. W. B.

Covering Seeds—Complaints are often made as to the quality of seeds when the fault is to be found in the mode of sowing; they are frequently covered too deeply, or when that is not the case the covering is pressed down too firmly, the result being that when germination commences the seedlings are unable to push through the soil; they in many instances raise the whole mass up slightly and then damp off, while the same kind of seed covered thinly and the soil sprinkled lightly over it has succeeded. For covering I prefer very light sandy soil, as after watering it does not settle down so firmly as when heavier material is used. Very minute seeds do best without any covering of soil, but a pane of glass should be laid over the pot to insure a uniform amount of moisture; it must, however, be taken off as soon as germination commences. The germination of hard seeds, such as those of Cannas, will be greatly assisted by soaking them for a few days in water. Before being sown put them in a pan of water and set it on the hot-water pipes until the seeds show signs of growth, when they must be at once sown, prior to which the soil should be warmed to the temperature of that of the house, or a check will be the result.—ALPHA.

Grafting.—All grafting tends to weaken the vitality of plants subjected to it; that, indeed, is its object, and, in conjunction with a suitable stock, increased fertility is the result. These sweeping and comprehensive remarks are made and on excellent authority too, be it told, on p. 188. My own conclusions are that grafting sometimes tends to strengthen; that to weaken is not always, if ever, its legitimate object; and that, in conjunction with a suitable stock, precocity or early fertility rather than increased fertility is often the result. On p. 187 under side-head "Stocks and Grafting" we are told that "a strong stock does infuse vigour into a tree;" hence "all grafting" cannot "tend to weaken." But I must ask Mr. Hobday to reconcile these statements, or to give us some idea as to which one he would have us accept as most correct. Allow me also to ask him the following questions: 1. Is a weak growing scion strengthened by being engrafted upon a strong growing or vigorous habited stock? 2. Is a strong growing scion weakened by being engrafted upon a dwarf growing stock?—F. W. BURBIDGE.

Rhus glabra laciniata.—Anyone having two or three old plants of this, and desirous of increasing them, may readily do so from root cuttings. All that is necessary is to take off as many of the roots as can be spared, especially the stout ones, and cut them up into lengths of about 3 in.; then, a bed having been prepared by mixing some sand with the soil either outside, or, better still, in a frame, they may be planted out and covered with 1 in. of soil if in the open, or if in a frame $\frac{1}{2}$ in. When the young plants make their appearance, which will not be long, they will only require to be kept moderately moist and free from weeds, and when sufficiently large to bear disturbance they may be potted, or shifted into other quarters.—ALPHA.

Ipomœa Horsfalliæ.—This grand stove climber is best increased by root grafting, and May and June are the best months in which to perform the operation. Take strong roots of any of the

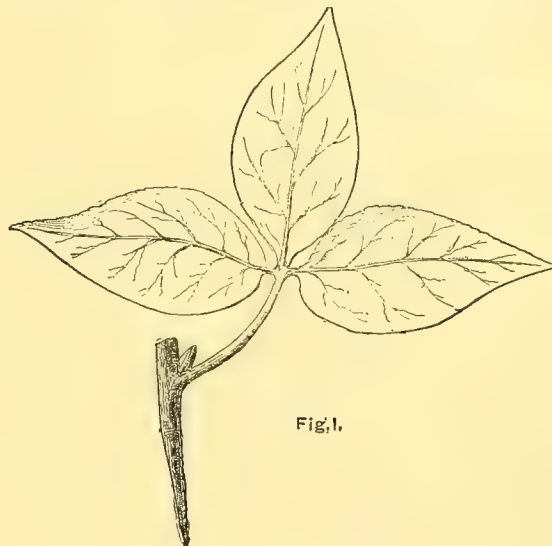


Fig. 1.

Cutting of *Ipomœa Horsfalliæ*.

other varieties and cut them up, taking care to lay the top parts all one way, make an

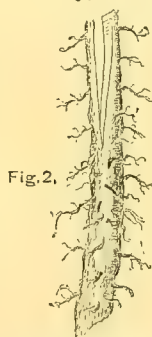


Fig. 2.

incision in the roots as shown in Fig. 2, and cut the grafts as in Fig. 1, making the bark to meet the rind on the root. Tie them together with matting, then make up a compost consisting of about equal parts, peat loam and silver sand and pot them in 5-in. pots, allowing the bud to just peep through the top of the soil. Give a good watering and place them in the cutting-box in the propagating house on bottom heat, or in a hotbed if not too steamy. They must be carefully watered at first; but after they unite and begin to grow, more water may be given and more air.—H.

Chimonanthus fragrans.—Has anyone ever been entitled to the prize which the late Dr. Lindley once offered to any gardener who could manage to strike cuttings of this plant? I have tried to strike it, but have always failed. What an acquisition this sweet-scented plant would be to our conservatories. At present it is only very seldom met with, but if one could discover a quick method of propagating it, it would soon become common.—A. Z.

PLANT PESTS.

AFTER repeated trials for some years with, I think, nearly everything that has been sold for the destruction of plant pests, the following I find to be the best:—

For Cockroaches and Crickets James' Superior Phosphor Paste is the best, clearing them off in one night. Place two or three pieces about the size of a Hazel-nut on pieces of paper and lay them in a dry place, but not too close to the hot-water pipes.

For Ants and Woodlice use Brook's Liquid Carbolic Soap, a gill to the gallon of water. The handiest way is to use a fine-rosed watering-pot, and sprinkle them over where seen in quantity. I have killed ants by thousands in this way when they have been disturbed and carrying away their eggs.

For Mealy Bug, Thrips, and Green Fly, Kemsley and Howe's "Wonderful" Insect Destroyer is both effectual and safe, and easy to prepare, mixing as it does at once with the water when it is ready for use. Half-a-pint to a gallon of water for mealy bugs on *Stephanotis* killed them at once, and they wash off easily. The same strength used for dipping Carnations killed the green fly and did not injure the plants in any way. One gill to the gallon of water for green fly on *Calceolarias*, *Verbenas*, and *Pelargoniums* cleared all off, and not a leaf was injured.

Florence Villas, Sydenham.

R. H. BARD.

THE GARDEN IN THE HOUSE.

Dinner-table Vases.—Now that plants are so largely used for the embellishment of dinner tables "Rusticus" has done well to draw attention (p. 200) to the vases in use to show them in and which are as ill adapted for the purpose as they well can be. Were they of the form of a flower-pot instead of a basin or pan, it would be an easy matter to drop a plant into them with the ball intact without the pot, and when out of use to replace it in its pot. As it is, plants must often have their roots disturbed in order to reduce the ball sufficiently to fit the vase, which disturbance is often far more trying than the change of temperature or atmosphere to which the plants are subjected. Surely if plants are admissible on tables they ought to have receptacles large enough to hold them. Not only are vases for plants unsuitable in form, but flower-glasses are in the majority of cases just as much so, and puzzle the most expert and clever to dress them, the slightest shake or disturbance disarranging the flowers. I have experienced this repeatedly, and to get rid of the annoyance, I now use wire, worked into squares like the bottom of a sieve made so as to fit the glasses about half way down, where it is suspended, and another on a level with the top, and through these meshes the stems of the flowers are put. Managed in this way, there is no difficulty in getting them to stand where placed, and a vase may be dressed and out of hand in a short time. Instead of glasses swelling out in the middle, as they often do, they should diminish in size there and on to the bottom, but in any case a wire net, such as that just referred to, affords good support. The way in which I think cut flowers look best is in ornamental bowls or vases filled with green Moss, which, with a little water to keep it saturated, will maintain them fresh and beautiful, and by the contrast it affords show them off to the greatest advantage. Bits of *Myosotis*, small crowns of Violets with Lily of the Valley and Snowdrops or other simple mixtures of that kind, dotted tastefully in a bed of Moss, look natural and have a very pleasing effect.—S. D.

Snowdrops for Table Decoration.—Few flowers are more interesting than the Snowdrop for dinner-table decoration, the delicate purity of its modest drooping bells when seen in masses under strong artificial light being peculiarly pleasing. We have lately used Snowdrops for large groups in the following manner: On large circular plateau tins blocks of wood were placed in the centre for elevating the silver candelabra to a level with the Snowdrops, then four rather tall plants of *Rivina humilis* were placed around the blocks, and then the remaining spaces were filled with large clumps of Snowdrops lifted with roots entire. The single Snowdrops being the tallest we placed at the back, and the double form we used for an edging, all intervening spaces being carefully mossed over. If kept in a cool room and the roots get moist, they will remain fresh for a long time, and then if carefully replanted will be little the worse for removal. I would urge on any one wishing to increase their stock of Snowdrops to lift any patches of them they may have that are becoming crowded as soon as the bloom has died down and the foliage begins to turn yellow, and after dividing them to replant them at once. They are by no means fastidious as to soil; they grow in positions that can scarcely be utilised for any other flower and they give a charming spring-like effect to pleasure grounds when seen in masses even before the frosts and snows of winter have left us. Under deciduous trees where the herbage is thin or in shrubberies where open spaces or glades occur, a carpet of Snowdrops may be easily introduced by digging out a little soil and dropping in the bulbs; they will re-appear at their appointed time and yearly increase in beauty and effect.—J. GROOM.

Sand a Preservative of Young Plants.—It is of course well known that the prime enemy of young Pansy and Carnation plants is damp; they rot at the root and are done for before we know what is the matter; and where the little plants in pots are standing out of doors, will you allow me to recommend the use of sand as a preventive of this disaster? The mode of applying it is as follows: Scoop out a little trough round the stem of the plant just

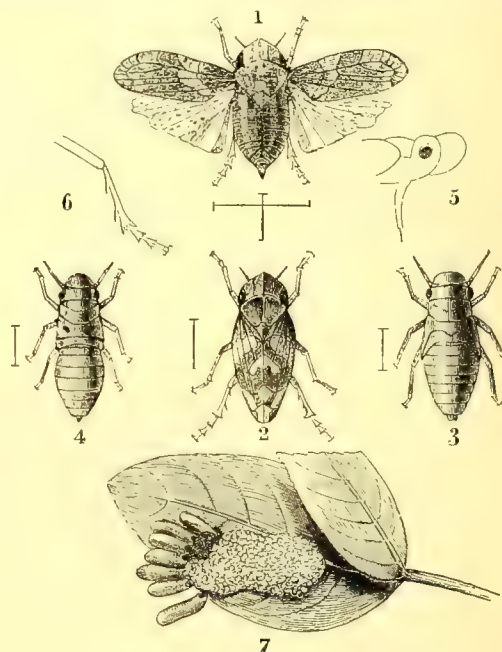
where it enters the earth, and fill it with sand, thus making a little collar round the cutting or young plant. This acts as a preventive of damp just where the plant is the most tender, and obviates what is often a very serious trouble.—GIROFLE.

GARDEN DESTROYERS.

THE COMMON FROG-HOPPER, OR FROTH FROG-HOPPER.

(*APHROPHORA SPUMARIA*.)

EVERYONE knows the little masses of froth so common on the stems and leaves of various plants during the summer months, and known by the name of cuckoo or frog's spittle, but few enquire or even care to know what is the cause of it, and if they do they are quite ready to believe that it is made by cuckoos or frogs; this, however, is certainly not the case, and the real author of the froth may easily be discovered by removing some of it when one, and sometimes two small, green, six-legged insects will be found in the middle, clinging to the plant. These are the larvæ of the frog hopper (most insects in this stage of development are grubs or caterpillars), and they feed on the juices of various plants by means of a long slender proboscis or beak. These juices, having passed through their bodies, are exuded in a frothy state. The insect



The Common Frog-hopper (*Aphrophora spumaria*).

utilises this secretion as a protective covering, and it doubtless makes a very efficient shelter from the sun, and within which it is very secure from the attacks of other insects and birds; it soon dies if deprived of its froth, and if removed from it a little distance immediately crawls into it again. Plants when attacked by this insect in any numbers suffer very much, for the amount of sap which each draws from a plant is very considerable; and when one remembers that the amount of fluid in this froth, some of which is constantly evaporating, is not the entire quantity drawn from the plant, as some has been utilised by the insect for its growth and sustenance, one cannot wonder that the shoots and leaves do not come to perfection. I am not aware that they ever attack large trees, but otherwise they do not seem at all particular as to the plants they attack; they prefer, however, those of a succulent growth, and are often very abundant on the young shoots of Whitethorn, on the undersides of the leaves of Plum and Apricot trees, and on the young shoots and leaves of Honeysuckles, Pinks, Carnations, Lavender, Lilies, Phloxes, &c. I noticed some Phloxes this year which were very much disfigured, nearly every leaf being contorted and twisted; on opening the leaves there were one or more of these

insects inside. Last summer they appeared to be more than usually common; many plants quite dripped with the moisture from the froth. In June near Bath I noticed a rough Grass field in which you could not tread without putting your foot on these insects; some of the tufts of Grass were quite white with the froth. I did not hear of any injury being sustained by the cattle, but it was impossible for them to graze without their swallowing numbers of these insects. The best way to destroy this insect is, as soon as it makes its appearance on the plants, to provide oneself with a pan of water and a small, stiffish brush, with which the insects can be removed and placed in the pan of water; or, the shoots or leaves may be drawn through the fingers, which should be dipped in water afterwards, to remove the insect and froth, before cleansing another leaf.

These insects are, as mentioned above, well protected from their enemies, but Messrs. Kirby and Spence mention that they are sometimes discovered by wasps. The eggs of this insect are laid in September or October, and are probably deposited on the stems of the plants; they are hatched in the following spring, and the young larvæ at once thrust their sharp beaks into the tender shoots or leaves, and begin to suck their juices. After some changes of skin they become full grown in the course of the summer, and then assume the pupa state, in which they only differ from the larvæ, as regards outward appearance, in having the rudiments of wings; in August or September the pupa skins crack, and the perfect insects appear. I have then found them in as it were little grottoes, formed by the froth drying up, leaving sufficient space beneath the drying covering for the insect to move about in quite free from moisture. The frog-hopper derives its name from its wonderful power of jumping; it has been known to spring a distance of 9 ft., which, considering its length—for the insect is not more than 3-10ths of an inch long—is truly marvellous; when disturbed it at once jumps away, and so suddenly that it is very hard, if not impossible, to follow it with one's eyes. The frog-hopper belongs to the Natural Order Hemiptera, which also contains the lantern flies, cicadas, aphides, and scale insects, and to the family Cercopidae, which contains a number of genera, the members of which are all vegetable feeders.

The genus *Aphrophora* contains only two British species. *A. spumaria* may be described as follows: Length about 3-10ths of an inch, head broad and somewhat triangular, yellow, or yellowish-brown in colour, antennæ consisting of only three joints, the basal one short and roundish, the second much smaller, but of the same shape, the third and last long and hair-like; the beak is long and pointed; the thorax and scutellum together form a triangle; the former varies very much in colour, in some specimens being blackish-brown, and in others yellowish; the front portion is generally considerably paler than the rest; the scutellum is usually of the same colour as the hinder portion of the thorax. The wings, when fully extended, measure about $\frac{1}{2}$ in. from tip to tip; the upper pair are somewhat horny, and vary in colour from nearly black to quite a light brown; they are usually marked with two or three transverse broken pale bands and numerous small, pale spots; the lower pair are transparent, with several longitudinal veins; the body is black and shining, the legs are yellowish, with the extreme tips of the feet black, the hindmost pair are strong, and the end of the tibia or shanks are somewhat dilated and furnished with a double row of fine spines; each joint of the foot is also armed with a row of spines; these are doubtless useful to the insect in preventing the feet from slipping when a spring is being made. The larvæ, when full grown, are about $\frac{1}{4}$ in. long, and are yellowish-green in colour, with prominent dark-brown eyes; their antennæ consist of eight joints; the head is furnished beneath with a long proboscis, from the point of which the insect can protrude three fine hair-like organs, two of which are toothed at one side like a saw: these readily pierce the vessels containing the sap, and enable the insect to obtain an ample supply of food. The pupa is very similar to the larva in general appearance, but has just the rudiments of wings.

G. S. S.

Camellias.—I recommend Mr. Roberts' remarks (p. 204) to the notice of those interested in the Camellia as an open-air plant. A wall 380 ft. long and 20 ft. high covered with Camellias must be a sight to rejoice the heart of all lovers of this fine evergreen flowering shrub. Even for its foliage alone the Camellia is well worthy

of all admiration, and when on a wall but little difficulty would be experienced in protecting the blooms. We do not yet know the true value of the Camellia, nor shall we until it is made common use of for clothing the naked walls of our dwellings, for this is the most important point. The Camellia will thrive and be happy where scarce anything, save the Ivy, can exist in comfort. North walls and over-shadowed situations may be converted into a fund of permanent enjoyment by means of this truly noble evergreen.—P.

THE LIBRARY.

CARTERS' PRACTICAL GARDENER.

THIS is a collection of well-written articles on various subjects by men skilful in their treatment. As an example of the contents of the book, which consists of over 200 pages, we take the following on the Vine, by Mr. Hunter, of Lambton:—

On selecting a site for a vinery, choose an aspect south south-by-east, or an elevated spot, where, if possible, a little shelter can be obtained from north and east winds. Being placed on high ground, it has many advantages—such as light, air, and sun. It also escapes the thick fogs and the damp stagnant atmosphere so pernicious to the well-being of the Vine, and acts as a preventive to aerial roots, warts, and mildew, to which the Vine is so subject in a damp situation. Further advantages of a high situation are the efficiency of drainage and the prevention of sunken borders. A lean-to house is best for early forcing, and a span-roof for summer, or where little forcing is required; demand will regulate the size. The houses should stand on arches, extending along the full length of the structure. If the position chosen is on retentive clay, quicksand, or a boggy piece of ground, the border should be taken out to the depth of 3½ ft.; a concrete bottom employed to the depth of 4 in. all over, with a slope of 1 in. to the foot, from back to front of lean-to, and from centre to sides of span-roofed house. Drainage being a most important item, the front drain should run parallel the whole length at the extreme front, and sufficiently below the level to prevent water standing in the cross drains, which should run from the back wall into the main drain at intervals of 4 ft. Place over the concrete and tiles 9 in. of broken bricks, then a layer of smaller pieces, like road-metal, and coarse gravel to finish with; lay the whole over with turfy sods, grass side downwards. A set of piers, made of brick or stone, should be built at intervals of 9 ft., 2 ft. from the front wall, and sufficiently strong to carry the hot-water pipes, before the border is made.

The composition for the Vines is of great importance—a good strong friable loam, taken from an old pasture field that has been grazed for a number of years, and calculated to be tolerably rich, taken off to the depth of 5 in. or 6 in., according to the amount of fibre in the turves as they leave the soil. This should be stacked away for twelve months in a free open place, fully exposed to the sun and weather, when it will be in the best condition for use. If the loam is of a light sandy nature it may be used green with equal success, but, as explained, a heavy soil is preferable. To every eight cartloads of turf add one each of lime debris, charcoal, burnt clay, good rotten cow-manure, and 3 cwt. of broken bones; well turn this over three times and mix properly. This mixture will form an excellent border and produce first-class Grapes. The depth of border when finished should be 3 ft., the arches being immediately under the surface, as then the roots can easily pass out without dipping deep into the border. The hot-water pipes should rest on the brick piers, close to the surface of the border; and the Vines should be planted between the pipes and the front wall.

Raising Young Vines.—The propagation of the Vine is conducted in many different ways, the preferable one being to raise them from single eyes. Select a quantity of prominent well-ripened eyes from healthy Vines, cutting them 1 in. below and 1½ in. above the bud; have in readiness the requisite number of pots properly drained, and filled with a rather light loamy soil, with leaf-mould and sand mixed; insert each portion up to the bud in the centre of the pot, and press firmly together; place them in a bottom-heat of 75° to 80°, with an atmospheric heat of 60°, to this add 5° more when they come into leaf. On making a few leaves they naturally rest, and until they show signs of growing they should not be repotted. When they are placed in 8-in. pots, half plunge them again in bottom-heat for eight or ten days, gradually withdraw them, and inure them to full light and sun. Give air on all favourable occasions, and shift on as required. A one-year-old Vine is preferable in the hands of an amateur to plant to any other, and should be procured where grown under favourable circumstances. February is the best month for propagation, and March and April for planting.

First Year.—The planting of the Vine properly is of the greatest importance to its well-being. In treating the one-year-old Vines prepared in 8-in. pots for planting, the border being ready as previously advised, turn the Vine out of the pot, place the ball in a pail of tepid water until soaked, then wash the roots clear of soil, place the Vine on the surface of the border where intended to remain, lay all the roots out in the form of a fan, place a strong hooked-peg round the collar of the Vine to keep it in its place and direct all the roots inwards, as they naturally turn out of their own accord. Cover the roots carefully with fine soil, commencing at the collar of the Vine, and draw the soil out over the roots, thus leading the fibres outwards. Be careful not to bury any of the stem of the Vine, as it causes delay until new roots are emitted. After the roots are nicely covered give them a good watering with tepid water of 90°, to settle the soil about them, and cover with short manure to retain the heat. In planting from the eye propagated the same spring the ball should not be broken, but put into the ground as entire as possible, and should be done in all cases before the pot is full of roots, otherwise the ball will remain inert for a considerable time. After planting they should be allowed to come away of their own accord without the aid of fire-heat. Shut up in the afternoon with plenty of moisture by the free use of the syringe. Avoid filling up the evaporating troughs, as it encourages warts, so common in young Vines. The width of rafters generally regulates the width apart for the Vines, but 3 ft. is close enough at any time, and two shoots taken from one Vine, the shoot to branch away from the bottom wire and to retain the lead in preference to any other side-shoot on the Vine, every piece of growth to be encouraged, and laid in to retain the full advantage of the light. Never allow them to become dry nor the house to become parched at any time, and insects will give little trouble. Apply a little fire-heat in the autumn to ripen the wood. Pruning may take place any time after the foliage has dropped. The cleaning of the house will require attention by thoroughly washing it, the Vines to receive the same attention, but avoid claying them up if clean. Where bug exists, dress the rods with a pint of coal-tar and six of water, adding clay and hot lime to the consistence of paint; this if followed up will soon diminish the insects and will not injure the Vines. If a good sound growth has been maintained, prune back to 6 ft. from the ground, and tie to the wires where to grow next year. Carefully remove all inert soil, making up with new, over this top-dress with 3 in. of good manure, when they will be ready for starting in the following spring.

Second Year.—Supposing the Vines to be started on the 1st of March at a temperature of 45°, in the middle of the month increase it to 50°, and by the end of the month 55°; when the eyes are fairly broke 60°, to increase to 65° as a night-temperature when the bunches are running out; this is sufficiently high at any season for such grapes as Black Hamburgh, Madresfield Court, Duke of Buccleuch, Buckland Sweetwater, Foster's Seedling, White and Grizzly Frontignan, Golden Champion, and Doctor Hogg. Any of these are suited for an early house. At all times shut up with plenty of sun-heat and moisture. Pinch the side-shoots this year at every third leaf on the main stem. Give air on all favourable occasions, night and day, when mild.

For a late house, where variety is wanted, the following—Muscat of Alexandria, Mrs. Pearson, Golden Queen, Raison de Calabrie, Lady Downes, Alicante, Alnwick Seedling, Gros Colmar, and Gros Guillaume—will, when in active growth, all succeed in 5° more heat at night with a free admission of air. Keep them well watered; it is scarcely possible to overwater where a good drainage exists; admit air more freely as the season advances and the wood becomes harder; when the leaves fall prune all the side shoots off close back to the main stem. The eye at the base will be sufficient for the next year's fruit, and the main cane cut back to 4 ft. of last year's growth. Vines are often cropped the second year, but are better left till the third. If desirous of seeing that they are true to name, one bunch of each Vine may be allowed to remain on the second year.

Third Year.—In the fruiting year, or third year of growth, it much depends on the strength of the Vine as to the crop it should carry; it is better to have a moderate crop well finished than to tax the Vine by an abundant crop, that generally fails to finish well, and ultimately ends in the ruin of the Vine. Four bunches will be found sufficient the first year of cropping; the bunches ought to be early and well thinned out, as bad setting rarely takes place with such Vines. Allow the temperature to run up to 85° or 90° in the afternoons when shutting up. Retain the night temperature as advised for the second year's growth. Let air be given and taken away by degrees in all cases.

Besides chapters on laying down Grass lawns by Messrs. Carter, Roses by the Rev. Canon Hole, &c., there is an excellent calendar of operations for every month in the year, and altogether the book will be found a useful guide in many ways.

THE FRUIT GARDEN.

SEASONABLE WORK.

Orchard House.—Now the sun is gaining power and the fruit in the early house is swelling fast, trees in pots will require good syringing twice a day—the first time before air is admitted and again about 3 p.m. or immediately after it is closed for the day. From this time forward the best time to water the trees will precede the afternoon syringing, when water a few degrees warmer than the house must be supplied in sufficient quantity to pass through the bottoms of the pots. If a good set has been secured carry on thinning and disbudding together, leaving a fair margin of say one-third more than the trees are capable of ripening, and gradually remove these up to the stoning period. It is difficult to lay down a rule for thinning, as much depends on the state of the roots, size, and vigour of the trees; but one thing is certain, a light crop always gives more satisfaction than a heavy one. The night temperature may now range about 56° with a little air when mild; 65° by day and 5° higher after shutting up under sun heat.

Cherries and Plums.—If not already set the Cherries and Plums will be in full flower, and being so impatient of a close confined atmosphere see that the house is freely ventilated whenever the weather is favourable, and air can be admitted without producing a cutting draught. The temperature may range from 40° to 45° by night and 55° to 60° by day. Fertilise the flowers, and keep the atmosphere rather dry than otherwise. Look well for the small grubs, which generally commence their destructive course when the young leaves begin to unfold, and keep them in check by hand-picking. Give more water to trees in pots and fumigate every house before the blossoms open.

Vines.—Assist the Vines in late houses now on the move with gentle fire-heat; syringe well two or three times a day, and bend vigorous young canes into a drooping position whose back bends do not incline to break freely. Give air at 70° and shut up at 75°, with moisture. Follow up disbudding and tying in mid-season houses. Remove surplus bushes from free-setting kinds before they come to flower, and fertilise shy setters with Hamburgh pollen when the proper time arrives for the performance of the operation. Keep up a circulation of dry warm air without producing a draught, and be guided by external conditions, the strength and age of the Vines, in the maintenance of the temperature. Hamburghs are generally kept about 65° at night, and Muscats 5° higher when in flower, but the main secret of setting Grapes is a warm border well filled with healthy roots. If not already done, remove the remains of the fermenting material from internal borders in early houses, and water liberally with warm liquid manure and guano water alternately until the Grapes begin to change colour. If likely to bind, remove a few more berries before they get too far advanced. Watch closely for spider; and as good growers never allow water to touch the fruit, timely sponging of the leaves with soapy water will be found the best remedy for its destruction.

Melons.—When the roots of the earliest Melons begin to work round the insides of the pots, and a bottom heat of 85° is maintained, other conditions being favourable, a quick and vigorous growth will soon show whether the first laterals are capable of carrying a crop of fruit. Victory of Bath, the best I have met with for early work, throws out an abundance of side shoots laden with female blossoms by the time the leaders have covered two-thirds of the trellis, and earliness being the first consideration, these should be pinched in order to throw vigour into the side shoots. When the female blossoms begin to open keep the atmosphere dry, and give air on all favourable occasions, as a means of keeping the foliage stout and firm, and at the same time assisting the setting of the fruit. Having secured a sufficient number of Melons on each plant by artificial fertilisation, stop at the second joint, mulch with stiff loam and manure, and gradually increase the supply of stimulating food and atmospheric moisture. Keep the foliage clean by good syringing on fine afternoons, but avoid wetting it on bright mornings. Aim at a night temperature of 70°, give a little air at 76°, run up to 80° or 85° under sun-heat, and a few degrees higher after closing. Keep a stock of healthy young plants by sowing once a fortnight, and throw away previous sowings before the confined state of the roots produces spider.

Cucumbers.—Old plants that have been in bearing throughout the winter will require very liberal feeding and copious syringing to keep them in a healthy and productive state. New compost, consisting of moderately strong loam and lime rubble, with a covering of short Mushroom manure, will also help them. Fill the evaporating pans with liquid manure, syringe the surface of the bed with the same, crop lightly, and give the young growths plenty of room. If

a compartment can be spared, clear out to the bottom, thoroughly cleanse every part of the structure, and make a new start with spring-sown plants. The varieties of Cucumbers are now very numerous, and the lover of novelties may grow as many kinds as he has room for plants; but for general all round purposes a good strain of Telegraph is not easily surpassed. Young plants now growing freely should be pinched to secure as many vines as may be required. Avoid rich feeding until they begin to bear; run the blinds down at night to economise fire-heat, and, if possible, dispense with shading. Keep up the linings round frames, earth the plants with good dry loam previously warmed, make it very firm, peg out the growths, and run up to 90° with sun-heat and moisture after closing; cover well with mats, and give a little night air. Make a sowing of some hardy kind for planting in frames after forced vegetables.

Pines.—The past winter having been against early Queens, the fruit in many places will be later than usual, at least through the early stages, but when fairly out of flower, the swelling of the first batch may be considerably accelerated by closing early under bright sunshine, with a corresponding supply of moisture, and stimulating the roots with alternate supplies of clear diluted liquid and weak guano water. Aim at a temperature of 70° at night, 80° by day, and 5° to 10° more after shutting up on fine afternoons. Keep the plants in a moderately moist-growing state at the root, and prevent the plunging material immediately over the hot-water pipes from becoming dry by watering between the pots with tepid water at a temperature equal to that of the house. Many of the plants from which a successional supply of fruit, consisting of Queens, Cayennes, and Rothschilds will be obtained, will now be making growth before they throw up. Give them a good bottom heat of 85° to 90°; water sparingly until they show; but keep the atmosphere of the house well supplied with moisture, and dew them over after closing for the day. If any of the young stock remain unpotted, lose no time in getting it finished, using good loam, which must be firmly rammed when in adry state. In some soils, Pines do not root so freely as in others, and where this is the case, small pots answer better than large ones, as the swelling of the fruit is mainly dependent upon the stem roots, and a small quantity of soil made solid is more lasting and less liable to become sour than when used in larger quantities. If not already done, remove the remains of winter fruiteders to a pit by themselves, or where they can have a dry, warm, atmosphere when ripening. If wanted to keep for a long time, the plants may be removed to a dry, warm room. Propagate shy kinds by trimming off the leaves, and laying the old stools in shallow boxes of leaf-mould plunged in a bottom heat of 90°. Keep plants in every stage of growth near the glass; give them plenty of room in the bed; if possible, dispense with shading, and secure stout growth by airing early on fine days.

Hardy Fruit.—Enforced delay in the open-air departments will have given time for the completion of all pruning and training, and if not already taken in hand the nailing of Peaches may be proceeded with. The blossom buds on these and Apricots are very backward, and it remains to be seen whether many of the flower buds on Apricots have not been seriously injured by the intense frost. Get all temporary copings, poles, and protecting material ready for fixing upon the walls as the blossoms begin to open. If thick and opaque some ready method of removing it by day must be provided; but a covering, consisting of several folds of pichard netting, may remain undisturbed until the fruit is set. If recent high winds from east and west have disturbed any of the newly-planted trees see that the supports are re-adjusted, and ram the compost firmly when moderately dry. Cut back all stocks intended for grafting, and keep scions ready when the sap begins to ascend. Remove the old foliage from established Strawberries, thin the crowns if necessary, and give the beds a liberal dusting with soot prior to mulching with stable manure; the latter should be placed between the rows before the tender young leaves begin to push from the crowns. Autumn-planted beds have suffered severely; so much so, that in many places one row will have to be taken up to mend another. Where the formation of new beds is anticipated the ground should be deeply trenched, heavily manured, and made very firm before planting. If strong runners of last season have been preserved in nursery beds defer planting until they are on the point of starting into growth, and if new heavy loam is at command give each young plant a good spadeful to start with. Tread very firm, mulch with short manure, and water in dry weather. Where a batch of strong plants were put out last August for giving the annual supply of runners for forcing, they should be well watered and mulched to encourage early growth, and all flowers should be removed before they open. Some growers obtain their first runners from early forced plants, but we have never succeeded in getting them so early or so strong as from maiden plants, which should be placed near the margin of walks and in proximity to a good supply of water.

W. COLEMAN.

FRUIT CULTURE FOR PROFIT.

It is not often one can call in question the statements of Mr. Hobday, for he is usually moderate as well as thoroughly practical in his opinions, but he raises a question in *THE GARDEN* (p. 269) that I should like to advert to shortly. He recommends pyramid Pear trees to be cultivated for profit; room, he says, should be found "for the handsome pyramid;" and as he insists on "exactitude of training, if it be necessary at all," I presume he means such pyramidal training to be carried out on the exact lines laid down by those who recommend the system. I will put the question thus: Suppose some one contemplating fruit-farming for profit asked his advice, would Mr. Hobday recommend him to plant pyramids, and care for them in the way these require to be cared for? or would he recommend him to plant standards and bushes on the natural and dwarf stocks, and let them assume their natural shape so far as was consistent with good culture? I read Mr. Hobday's statements in the light of the heading attached to them—"Fruit Culture for Profit," and I was, I confess, surprised to see trained pyramids recommended for such a purpose, because no one can show that they will pay so well as natural bushes and trees that require so much less trouble. Why do not the fruit growers in market gardens grow pyramids? Some of our most enterprising market growers round London grow dwarf trees or bushes well, but they take no trouble to train them in formal shapes, for the simple reason that it will not pay. The question can be put into very short compass. Can a Pear or Apple tree be grown as a natural standard or bush to as good or better purpose, as regards crops, as in the form of an inverted letter V or a balloon? and if the answer be in the affirmative, then why adopt the latter plan at all? This is a far-reaching question, as will, I daresay, be perceived, for it goes to the root of the whole system of formal training of fruit trees not grown on walls, and I submit that it is incumbent upon a man who advises me to grow trained pyramids, &c., for profit to answer the question formally. I affirm that trained trees in the open orchard pay the worst, if they pay at all, and, as a matter of fact, they are not cultivated to pay. If you turn a market gardener in a gentleman's garden to make the most of it, and he finds a collection of fancy trained trees there, he will neglect them, except just so far as might be needful to keep them fertile.

It is all very well talking about a nicely trained tree "giving pleasure to a well ordered mind," and all that, but I maintain that unless the tree fulfils the purpose fully for which it was originated and for which it is cultivated, it affords no pleasure to such a mind, because it is then simply an abortion. In these days when no gardener dare defend formally shaped, clipped, or pruned trees in the pleasure garden proper without being accused of barbarous tastes, how can he consistently favour just as formally and ugly-shaped fruit trees of the same kind because they are supposed to be "handsome" while less profitable to grow for fruit? I do not wish to raise an aimless discussion on this point, nor need there be one. I have put my questions into short compass if any one is prepared with a pointed answer, for mere speculation is of no use.

Since the above was written I see Mr. H. recommends the "pendulous" pyramid as the best. It is certainly one of the most expensive forms to adopt, as every shoot needs to be tied down as it grows. Imagine the labour incurred upon 1 acre of 300 trees—the number given by your correspondent! Can he find any grower for profit who will listen to such a proposal? Has your correspondent at all calculated the cost per acre of training and pruning pendulous trained pyramid Pear trees? (I dispute the statement that the pyramid shape is "natural to the Pear." No man ever saw a seedling Pear tree assume such a shape of its own accord, and a real pendulous habit belongs to none, or exceedingly few.) Putting aside the cost of raising the trees, the cutting and carving to keep the stem straight and arranging the branches in their places, how much, may I ask, will it cost simply to train and prune the trees annually after they get to be 12 ft. high and 10 ft. diameter at the base? You must tie the branches down singly by their joints to preserve the pendulous habit, or the trees will go wrong in one season, as I know from lengthened experience, but if any one will refer to "Thomson's Gardener's Assistant" they will then see what the labour entailed is like. To prune and train such full sized trees on the most economical scale possible at the winter pruning, when pegs or hoops have to be looked over and old ties renewed and many new ones added, it takes a man about a day to a tree, as workmen go. Altogether, it will cost nearly 5s. per tree to train it. But I will call it 2s. 6d. per tree on an average, which means close upon £40 per acre for training so done. Now cast up the average returns likely to be realised from the crops in this country per acre, and then tell us where the profits are to come from. If these figures do not satisfy Mr. Hobday, will he tell us what the work can be done for? I apprehend he realises the necessity of estimating the cost of fruit-farming on the "pendulous pyramid system," and does not advise

any one to go into it haphazard fashion. Take now the natural shaped standard or bush tree—I care not what stock it is on—and let it grow with a natural shaped bush top. What labour does it require to cast it into form? none comparatively, and a man may manage usually an acre for as many shillings as it costs pounds by the other, not to speak of the fact that you get a good sized tree in less than a quarter of the time. We had a large number of large pendulous pyramids here at one time, but I really could not afford a tithe of the time they took to train them; and as the crops never half paid for it I gave it up. I found, however, that when allowed to grow upwards the trees looked so queer, giving one the idea of their having at one time been planted wrong end up, and afterwards reversed again, that I had the branches sawn off close to the stem and a new growth originated, and they still show the effect of the operation. I had for years also to deal here with a long avenue of very accurately balloon-trained Apples and Pears of mature age, but for the same reasons they were done away with or given away, and a few are still about the village that show how well they had been trained. Some that we kept I sawed off at the stumps, and turned them into standards, which are something like pollarded Willows now. My noble employer, with whose permission I did away with them, said he never remembered them bearing anything like a remunerative crop. Being on the natural stock they required no end of root-pruning, and they annually produced an enormous crop of shoots from their table-shaped tops—if not watched continually—at the expense of the pendulous borders. I am not, therefore, speaking on this subject without experience. I can state as a fact that a pendulous pyramid is nearly three times as costly to grow as the natural pyramid, and the latter about three times more costly than the natural bush or standard forms, speaking well within the mark, and in the latter the results are better than in either of the other two. J. S. W.

CINERARIAS AT REDLEES, ISLEWORTH.

For many years past Mr. James has been well known as a highly successful cultivator, exhibitor, and improver of various kinds of popular flowers, or what are generally termed florists' flowers. The kinds to which he has more particularly directed attention are the Pelargonium, Primula, Auricula, Cyclamen, Calceolaria, and Cineraria; the three latter he has improved so highly, that his "strains" of them are unique, and the nearest approach to the ideal type that has been yet attained. His Cinerarias are now at their best, and a magnificent sight they are—not a few plants, but some hundreds, all large plants, finely grown and profusely flowered. To see on a bright sunny day such a collection of plants as this with their blossoms of every conceivable shade of colour is a sight not easily forgotten. The bulk of the plants are placed in a long span-roofed house facing the south, and are arranged on a sloping stage seven or eight deep, whereby the plants have the full benefit of the light so essential to the perfecting of the seeds. Mr. James' strain of the Cineraria is remarkable for large size, perfectly circular outline, breadth and substance of petals, and brilliant and various colours in distinct symmetrical zones.

With regard to giving distinctive names to the best forms of Cineraria, or in fact of any flower that is commonly raised from seed, there appears to be a considerable diversity of opinion, but Mr. James has given names to a few forms that he has for years been selecting and improving so as to attain perfection. Of a few of the finest named sorts in the Redlees collection there are numerous plants that have been propagated by offsets from the original plant, and these may be singled out from the mass of seedlings on account of their more perfect flowers and distinct colours. All the plants are grown in 4½-in. and 6-in. sized pots—sizes apparently much adapted to the successful culture of the Cineraria, judging by the plants in question, which are well furnished with healthy foliage and a profusion of flowers. As we before remarked, there is a wonderful variety of colours represented, some of the shades being quite novel and almost indescribable, and some of the newest seedlings have brilliant flowers, varying from the richest deep crimson to pale pink, and from a deep ultramarine to a pale sky-blue.

Foremost amongst the named sorts are Mr. Bland, now an old variety, but superb as regards form and colour, which is a velvety blue-purple; Master Colvin, one of the finest of all, some of the flowers measuring 2½ in. across and perfectly circular in outline, colour, a rich magenta on the outer zone, then a narrow zone of white encircling a dark centre; Master Harold, a sort similar to the preceding as regards colour, but the flowers are a trifle smaller and, if anything, more perfect as regards form. These two sorts have apparently been selected from one named Sarah Winter, an old variety possessing similar colours, but with smaller and less perfect flowers. Mr. H. Little and Mrs. H. Little, the two sorts shown at the last floral committee meeting at South Kensington

are both very fine; the latter has large flowers, perfectly circular and of firm texture, of a pleasing rosy-pink, with a dark centre. Mr. H. Little is the most remarkable of all, being quite distinct as regards colour from any yet raised. It was fully described in our columns last week, when it was awarded a first-class certificate, a distinction which all the other sorts we have named have also received in previous years.

The collection of Cyclamens is likewise at its best, the majority of the plants being unusually large, furnished with scores of blossoms, and otherwise unsurpassable examples of skilful culture. The varieties are numerous, the most noteworthy being those with pure white and deep crimson flowers. A few new tints in the giganteum strain we noticed among Mr. James' plants. W. G.

LATE NOTES AND QUESTIONS.

Sambucus racemosa.—I came across a plant of this last autumn that may probably throw some light on the question asked by "W. H. T." (p. 288). It was growing in a stiff soil in a cool, moist situation, and was covered with its beautiful highly-coloured berries, while many others growing near, but in lighter and drier soil, had not a berry on them, although they had grown and flowered equally well as the one which was loaded with them.—ALPHA.

Orchid Seed-pod.—About twelve months since I received an *Odontoglossum pardalinum* with a seed-pod fully formed on it. It has now continued in the same state all the year, and does not seem either larger or ripier than when I had it. Do such pods require more heat to ripen the seed than they are likely to get in an *Odontoglossum* house?—W. B.

Calla Lilies in Water.—Will it injure these to grow them in a tub of water? and if not, what other plants can I grow with them? Will *Cyperus* or any bulbs do, such as *Crinum*? What could I grow to hide the sides of the tub? I should keep it in the greenhouse.—M. E. G.

Slow Combustion Boilers.—Would any person who has used one of these during the past winter for a plant house be so kind as to give his experience of its usefulness in keeping up a suitable temperature when the thermometer outside was below zero?—BERWICKSHIRE.

Water Melons.—My employers are anxious that I should grow Water Melons, of which they have given me some seed. As I have had no experience in growing them I should feel grateful for some information on the subject. Do they require the same treatment as other Melons as regards top and bottom heat, &c.?—SUBSCRIBER.

Asparagus Culture.—Being much interested in your article on Asparagus growing, I propose getting some three-year-old roots, so as not to waste time. Is this what you advise?—G. P. M. [On no account plant any but hearing plants. You have not read the article with attention.]

—I see an advertisement of Asparagus culture in your book column. Please let me know if it is ready.—G. P. M. [No.]

Galvanised Wire Netting.—We learn that the first prize for this at the Melbourne Exhibition has been awarded to Messrs. J. B. Brown & Co., of 90, Cannon Street, London, making the eighth international first prize award won by that firm for their wire netting.

Obtaining Violet Cress.—Will "W. G." inform me where either plants or seeds of Violet Cress (*Ionopsisidium acaule*) can be obtained, as I have been long trying to get it? The nurserymen do not seem to know it.—W. E. P. [We find it in the catalogues of Mr. Thompson, Taverner Street, Ipswich, and Messrs. Barr and Sugden, Corrent Garden.]

Grubs.—S. G. B.—The grubs in your border are the grubs of a small gnat-like fly; they feed on decayed vegetable matter, and are not likely to injure your plants if in a healthy condition; a good dressing of lime, soot, or salt would probably destroy them.—G. S. S.

Bedding Vines.—I shall be very much obliged if any of your correspondents will be kind enough to let me know if it is possible to stop the bleeding of Vines. I have tried several styptics, but failed to stop it.—A. C.

Grocers' Currants.—Can any of your correspondents inform me where I can procure a plant of the Vine (Black Corinth) which bears the small Grapes sold by grocers as Currants?—H. M.

Roses.—New Sub.—You will find articles on Mr. Baker's Roses, one by himself and another by "Delta," in THE GARDEN for 1879 (p. 135 and 139).

Bridal Wreath.—Can any one tell me the botanical name of a plant commonly known as the Bridal Wreath?—H. A. M.

Pelargonium Sports.—C. Marted.—Scarlet and white pips in a truss of *Vesuvius* are not uncommon; but seldom have we seen both so fine as in the truss sent.

Odontoglossum crispum var.—N. C. Cockson.—The flower you send represents a very rare and valuable variety spotted to an unusual extent.

Paris Daisies.—Mrs M.—Any London nurseryman can supply them.

Names of Plants.—C. M. O.—The *Primrose* is a variety of *P. acaulis* known as *altaica*, but it should not be confounded with the true species bearing that name; *Helleborus olympicus*; *Erica arborea*.—Mrs. S.—The specimen is insufficient.—J. B.—*Cryptomeria japonica*.—W. B.—Apparently *Dendrobium crepidatum*. The variety of *Odontoglossum Alexandrie* is a good, but not an extraordinary one.—J. D. O.—1, *Odontoglossum gloriosum*; 2, *Epacris miniata*; 3, *Grevillea Preissii*.—C. M. Owen.—*Libonia floribunda*.—Mrs. Palmer.—The shrub is *Chimonanthus fragrans*; the other plant is *Cyperus alternifolius*.—Delta.—The kind with plain, round leaf is *Cyclamen Coum*; the other is the white variety of it; and that with a mottled leaf and white flower is *C. Atkinsii album*.

* * * Want of room this week has prevented many valuable communications from being inserted.

MR. GRAHAM McCULLOCH, from Messrs. Dickson & Co., Pilrig Park Nursery, Edinburgh, has been appointed gardener to the Right Hon. Viscount Powerscourt, Powerscourt, Co. Wicklow.

JAMES ALEXANDER, senr., died at Redbraes, Edinburgh, on the 12th inst. Many will remember the name in connection with the firm of Messrs. Dickson & Co., 1, Waterloo Place, Edinburgh, with whom he was long associated. He was a good friend to gardeners, by whom he was much respected.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

HELLEBORES AT KEW.

A RICHER or better grown collection of Hellebores than that at Kew, now in its best flowering condition, could not possibly be referred to. It is not the original collection, which now has become depauperated in the poor soil of the herbaceous ground, but the fine collection which Mr. Hook, an enthusiastic collector and skilful cultivator of the genus, presented to the Garden when he left his beautiful little Berkshire garden at Bradfield some three or four years ago. Mr. Hook not only enriched his collections from every available source both in this country and on the Continent, but worked assiduously among them, annually raising new kinds by hybridising, and judiciously selecting the finest forms. By this means he obtained some very handsome varieties; in fact, quite distinct from any of the original types, and owing to the soil in his garden, coupled with its fine sheltered position, suiting their requirements, he grew them to a great size in a comparatively short time. At Kew just now may be seen some very fine plants; one, a cross between *H. colchicus*, the deep purple-flowered species, and *H. guttatus*, the white-flowered species, spotted with purple being especially remarkable. The progeny of this cross exhibits in its flowers the spots of deep purple overlying the glaucous livid hue, and is very distinct. They are strong growers and abundant flowerers. *H. guttatus* itself is really beautiful, and could not fail to please even the most fastidious, for the sepals are pure white except at their inner bases, which are copiously dashed and freckled with dark purple. Its habit of growth, too, is very graceful, the flowers on slender stalks nodding prettily, so much so that when we wish to closely examine them they must be upturned. Amongst other attractive kinds may be named *olympicus*, *abschasicus*, *atrorubens*, and what is popularly called the Christmas Rose (*H. niger*), the major variety of which is truly handsome, and quite distinct from the ordinary kind on account of the rosy tinge with which the exterior of the flowers is feathered and grained. Amongst Hellebores there are of course several kinds which are by no means attractive, though still interesting to those who make them a special study, but even green-tinged flowers in winter are welcome.

The exceptional growth of the plants at Kew is of course mainly due to their being in a favourable position, viz., under the shelter of a wall near the shade of trees, and also to their being planted at the outset in a deep soil enriched by means of plenty of good rotten manure and leaf-soil. The success is all the more remarkable because of the fact that the plants were removed from Mr. Hook's garden in the middle of June in hot and dry weather, but by carefully shading and constantly retaining moisture about them, by syringing and watering, they were not much checked, and soon became re-established, thus affording a striking instance of the practicability of transplanting hardy flowers, even in the height of summer, though such a course is not advisable.

Now that the Hellebore collection at Kew has become really worth looking at, we hope that it may be allowed to remain in its present position, though to the botanical sequence of the arrangement but little regard has been paid. The right place for the genus, looking to the proper arrangement, would have been in the poorest part of the ground, which is too poor even for the commonest weeds to maintain a foothold; besides, an open position is in no way suitable for plants which in Nature are only found in woods and thickets, a fact which serves to illustrate the fallacy of following Natural arrangement in the case of hardy herbaceous plants in a botanic garden. Here, let us say, is a Hellebore, which never in Nature affects any but sheltered or shaded places, planted and expected to grow, flower, and perfect seed by the side, or at least a few yards from such plants as Sun Roses, Stonecrops, Saxifrages, or Pinks, all of which naturally grow in the most exposed places, bearing with impunity a scorching sun, and being indifferent as to soil. On the other hand, how beautiful might the herbaceous plant collection in a botanic garden be if due attention were paid to the

natural likings of the plants instead of Natural arrangement! Then even the unlovely botanical weeds, which nobody but a student of botany could admire, could be interwoven as it were imperceptibly among their gayer-flowered congeners, and would thus be rendered even attractive. Moreover, a natural (not botanical) arrangement would not detract from the collection as a means of study. No; on the contrary, the student would have a better idea of what the plant really was when well grown, and the non-botanical observer would be equally interested.

W. G.

SPRING FLOWERS AT GLASNEVIN.

SINCE my last list of spring flowers was sent to THE GARDEN numerous additions must be made to it, many of the new comers being very beautiful. Two more Hellebores have opened, viz., *H. cyclophyllus* and *H. viridis*; both belong to the green-flowered section, but must not on that account be thought dull or ugly; they are, in reality, both graceful and interesting. We have also to add the clear bright colour of the finest of the "trumpet-flowered" section of *Narcissus*, *N. maximus*, now in flower, which catches the eye even at a distance, and others are blooming everywhere through the grass. *Saxifraga Tombeana* grows in dense cushions composed of small rosettes closely clustered together, and much resembles *S. squarrosa*; it is quite hardy and blooms well, the flowers being solitary, white, and about as large as those of *S. Burseriana*. *S. oppositifolia pyrenaica* is larger as regards the flowers than the other varieties of *S. oppositifolia*, but not nearly so good in colour as *S. oppositifolia* major, alluded to last week. If one had to select four choice *Primulas* it would be difficult to choose four better than those which opened last week, viz., *P. rosea*, *P. marginata*, *S. pulcherrima*, and *P. denticulata*. All the four are quite hardy, and have remained unprotected for some years where they now are. *P. rosea* was the first of them to flower. I am glad to be able to announce the advent of *Iris* No. 2, viz., *I. stylosa*, which opened here on March 19, and which is now very beautiful. Its colour is light blue, the falls being blotched with clear yellow and white. It well deserves a warm sheltered corner, and should certainly be added to any collection in which it has not yet found a place. Two other flowers which deserve a word of mention are *Tulipa biflora* and *Ficaria grandiflora*. The former was one of a number of bulbs sent by Dr. Regel. It has on each stalk two blooms of a pale yellow colour, star shaped, about 1 in. in diameter, and not very showy. The *Ficaria* is also yellow, but the flowers are of such a clear bright description and so large, that they are very conspicuous, rendering the plant an acquisition to any collection.

List of plants which opened in the Botanic Garden, Glasnevin, since March 15:—

Anemones (various hybrids)	Helleborus viridis	Primula denticulata
Arabis rosea	Hyacinths (varieties)	rosea
Cardamine trifolia	Hyoscyamus orientalis	marginata
Doronicum austriacum	Iris stylosa	pulcherrima
Dentaria digitata	Milla uniflora	Pulmonaria azurea
Donia Epipactis	Muscari botryoides	Puschkinia scilloides
Draba lasiocarpa	allia	Saxifraga Tombeana
Erica mediterranea	strigosa	oppositifolia pyrenaica
Epimedium versicolor	Heldreichi	aica
Erythronium Dens-canis	Narcissus pseudo	coriophylla
Ficaria grandiflora	cissus	Trillium nivale
Forsythia suspensa	maximus	Tulipa biflora.
Helleborus cyclophyllus	Polygala Chamæbuxus	

F. M.

Narcissus maximus.—This is one of the best spring flowering hardy plants, effective even half-a-mile off. Colour it has enough of to make an Allamanda flower look like a Primrose beside its glow of gold! It generally has a struggle for first place among the early Daffodils, but this year *N. minor* has beaten it by seven or eight days. I have *N. Tazetta floribundus* from St. Michael's Mount; it is now lovely here under a sunny wall. *N. biflorus* near a stoke-hole fire is always the first *Narcissus* to bloom here. I am planting all sorts of half hardy things close to the foot of our old walls, and find many tender plants escape when covered with ashes for the winter. *Calceolaria Pavoni*, *Hedychium Gardnerianum*, *Amaryllis Acramanni*, *Sauromatum guttatum*, *Crinum* of sorts, and many other things keep fresh and healthy thus, and break away in spring and grow far more vigorously than when grown in pots. *Cannas* and *Dahlias*, *Marvel of Peru*, &c., succeed perfectly in this way. This is one of those simple old-fashioned dodges which means much in a good garden.—F. W. BURBRIDGE, *College Botanical Garden, Dublin*.

Wallflowers.—In reply to "W. J. M." (p. 313), I am sorry to say that, so far as I know, Wallflowers are in a sorry plight throughout South Lancashire and Cheshire. Probably they are better near the sea, but in our inland districts they are alive, and that is all. Their spring beauty is gone, and this has been the case now for three

years. We must have lost 1000 plants at least, and I see all the nurserymen about Sale and Stretford have their large stocks of Wall-flowers much blighted. Mr. Brownhill, of Sale, told me yesterday that he had saved none but those he had in frames. The Irish climate is much milder and damper than ours, so that Wallflowers will live through winters there which are fatal to them in the north of England. —BROCKHURST, *Didsbury*.

— If properly treated the Wallflower may become, without much trouble, a more valuable plant even than it is at present. How often do we see whole rows of unsightly scraggy plants disfiguring the whole garden until they come into bloom, when with a very little care we might have our houses full of their fragrance a month sooner than we do. My plan is never to grow from seed, but to set apart two or three plants solely for the purpose of propagating from. If the flowering tops of these be pinched out, they will soon form an abundance of suitable growth for cuttings, which should be dibbled in, in a sandy compost, pretty closely together under a hand-light. When sufficiently large, pot some of them in small pots, and put them in the open air somewhere out of the way till the autumn. During summer, or when they require it, shift them into 4-in. or 5-in. pots, and guard them against autumn bloom. Pinch off the shoots up about 4 in. or 5 in. of the stem, to induce the formation of a bushy head. In the autumn bring them into a cool house or frame till they begin to show bud, when they may be put into the greenhouse to bloom profusely. Both single and double kinds answer well under this treatment, and with a little management a long succession may be obtained. There is a new early flowering variety which is best adapted for this experiment, as it will flower, if well treated, in midwinter. Another mode of treatment once common, but now almost extinct, is the formation of the Wallflower (naturally a shrubby perennial) into an immense floriferous bush. The shoots should be pinched off halfway up the main stem, and though bushy growth should be encouraged, it should not be allowed to flower the first two years; the stem and head will then be properly matured and hard, and the whole bush will annually become an immense dome of flower. The shoots should be well cut back each year directly after flowering (allowing no seed to ripen), and the bushes once so frequent, but now rarely found, except in a few cottage gardens in the midland counties, may once more become well-known objects among us. —GROFLE.

NOTES OF THE WEEK.

Pitcairnia corallina.—This noble Bromeliaceous plant was shown in fine flowering condition on Tuesday last at South Kensington by Mr. Green, gardener to Sir George Macleay, Bart., Pendell Court, Bletchingley. It is highly attractive, noble in foliage, and showy as regards flower. The leaves are some 4 ft. long and from 3 in. to 6 in. in width, the upper surface being deep green, the under covered with a white mealy substance which gives them a silvery appearance. They are borne erect and form a graceful spreading tuft, from the centre of which the flower-spike is produced. This is about 15 in. or 18 in. in length, and in Mr. Green's specimen deflexes considerably. The stalk is bright red, as are also the blossoms, which are 3 in. in length, and densely arranged on the stalk for two-thirds of its length. There were nearly a hundred flowers on this specimen, some faded, others expanded, and the majority yet to open. The brilliant colour of the flowers and the noble port of the plant render it very desirable. It is, we fear, yet rare, though most of the large London nurserymen have plants of it.

Sikkim Rhododendrons at Kew.—The exceptionally rich collection of these noble shrubs in the temperate house at Kew is now beginning to flower, though there is not such a promise of bloom as we have hitherto seen. The huge trees of *R. arboreum* have expanded their handsome clusters, and a very fine effect they are producing. *R. argenteum*, a contrast in colour to *arboreum*, is also in flower; the colour is a silvery-white, with a deep purple blotch at the inner base of the long, bell-like flowers. The noble foliage of this species combined with the large, dense clusters of flowers renders it a very striking object. Some of the Rhododendrons that have produced leaf instead of flower-buds also look pretty at this season, as the bracts surrounding the unfolding foliage are often brilliantly coloured, and set off the delicate green tints to advantage. The Camellias in this house are likewise very gay this year, many of the large bushes being loaded with blossoms.

Two Beautiful Hardy Heaths.—Mr. James Smith, Darley Dale Nurseries, Matlock, sends us plants of *Erica carnea* and its white-flowered variety *alba*, both very pretty, being completely covered with blossoms. Undoubtedly *E. carnea* is the best of all the early hardy Heaths, as it is a free grower in any light soil, and never fails to produce abundant crops of its pretty flowers. The white

variety is not so common as the other, but very pretty, the white waxy flowers and brown stamens making it very attractive. We have often heard of the fine way in which Mr. Smith grows hardy Heaths, and now we have an excellent illustration of it, for the plants sent are large, well grown, and the best specimens we have seen of these bright little spring flowering Heaths.

Marica gracilis.—This is a Brazilian Iridaceous plant, well worth growing on account of the extremely pretty flowers which it numerously produces in continuous succession nearly throughout the year. The foliage is Iris-like, and so are the flowers, except that the falls or drooping petals are broader, and the standards or erect ones are singularly reflexed. The colour of the falls is pure white, that of the standards deep blue, mottled and barred with a brownish hue—a harmonious combination of colours which renders the plant highly attractive. The flowers are rarely open more than a day, but on the other hand they are produced plentifully under good culture, a circumstance which amply compensates for that defect. It requires to be grown in a warm, moist stove similar to the Victoria regia house at Kew, in which we saw a fine specimen in flower the other day.

New Spray Apparatus.—At the show at South Kensington, on Tuesday last, Mr. Bentley, of Scarborough, exhibited his various inventions for distributing water in the form of spray, applicable for various purposes, but chiefly for the distribution of fluid insecticides for destroying insect pests on plants. To effect this, the insecticide is placed in a hollow brass ball at the end of a syringe, and the water as it is thrust out mixes with the insecticide and is spread in a fine misty spray, so fine indeed as not to injure the most delicate subject. The thorough manner in which the insecticide mixes with the water renders the invention especially valuable for applying paraffin and similar oily fluids that do not readily mix with water. The spray apparatus is also applied to tubes, for fixing on hydrants or any ordinary tap, and the contrivance for syringing a house by means of a fixed series of jets does its work very effectually, thereby saving both labour and time.

Yellow Colchicum (C. luteum).—We were somewhat disappointed with the first sight of this rare Himalayan bulbous plant, for, though the colour is a good clear yellow, the flowers are small and inconspicuous—not nearly so showy as those of a yellow Crocus. The plants which we saw were at Kew in the open border; they were about 3 in. high, and had narrow leaves and flowers with narrow petals. It is, however, a very interesting plant, seeing that it is the only yellow Colchicum we have, and probably it may be finer as it becomes more cultivated.

Sisyrinchium grandiflorum.—This is a gem among hardy plants in flower at this season; we could not, indeed, mention a plant that is so universally popular as the purple and the white forms of it. The semi-transparent bell-like blossoms nodding gracefully on slender thread-like stalks are very charming. It grows best in a warm border of light loamy soil, which should be thoroughly drained, as the plant is somewhat impatient of excessive moisture. The original purple kind is grown largely by some in pots, but at Messrs. Osborn's, at Fulham, a goodly batch as well as the white variety is thriving and flowering finely in the open ground.

Cape Bulbous Plants.—Some of these, grown in pots, are now prettily in flower in one of the cool houses at Kew. They comprise *Synnotias*, *Babianas*, and *Sparaxises*. *Synnotia bicolor* has pretty white flowers with the upper petal tipped with bright purple, which, with the clear yellow palate below, makes the flower very attractive. *S. variegata* has purple flowers mottled with a lighter hue. *Sparaxis grandiflora* is a fine plant, particularly some of the higher coloured varieties, of which there are several. Among *Babianas* were *B. villosa*, a deep crimson flowered kind, reminding one of *Schizostylis coccinea*, and *B. rubro cyanea*, also a very pretty kind, with purple flowers having a red centre.

New Holland Plants at Clapton.—The houses devoted to these at Messrs. Low's nursery are now quite gay, as the larger portion of the kinds grown are in their best. The brightest are the *Chorozemas*, of which there are some half-dozen kinds grown extensively, for all seem popular, and command a ready sale. All the cultivated kinds of *Eriostemon* appear to be represented, and very pretty they are, particularly *E. buxifolium*, *intermedium*, *pulchellum*, and *nerifolium*. Various of the *Leschenaultias* are covered with their small bright coloured blossoms, *L. formosa*, with almost scarlet flowers, being particularly showy. *Boronia megastigma* is more remarkable for its delicious perfume than for its high coloured blossoms. *B. serrulata*, *pinnata*, and a few others are also very showy. The best of the *Correas* is *C. cardinalis*, with its long pendulous crimson flowers, and it has the advantage of being an easy kind to manage, and in being a free grower and flowerer. The *Acacias* that seem to be most popular are *A. armata*, *Drummondii*, *hybrida*, *longi-*

folia, lineata, and cultriformis, most of which are either in flower or bud, and represented on a similarly large scale as all the plants grown at this nursery.

Hexacentris mysorensis.—One of the most ornamental stove climbers we have in cultivation is this Indian Acanthad, a large plant of which is now flowering in the Palm house at Kew, trained to one of the pillars in the east wing. It has slender twining stems and bears large pendulous clusters of red and yellow flowers in great profusion when well grown. The variety lutea has flowers wholly yellow. *H. mysorensis* requires a hot and moist stove to grow it successfully, but its showy blossoms amply repay any care and attention which may be bestowed on it.

Crocuses in Grass.—These are beautiful in the Grass now in Hyde Park—quite a bright and varied garden of colour in clouds in the Grass. They are not so pretty, however, when seen after being dibbled in fresh as where they establish themselves and form colonies of strong tufts. Referring to this naturalisation of Crocuses, the best way is to place them wherever they will never be removed afterwards, in a grove of deciduous trees, where their foliage may decay undisturbed. The system of replanting frequently is impossible in this way; the judicious use of spare bulbs from the garden or forcing house will be all that is necessary. The dreadful old way of tying up the leaves or cutting them off will not, of course, be carried out in this case, or, we hope, in any other.

New Aloe (*A. macracantha*).—This new species of Aloe is now flowering in the Cactus house at Kew. It has a stem 3 ft. or more high and a head of thick fleshy leaves, beset on either margin with large spines, hence its specific name. The flowers are produced in branching clusters, and are of a pale orange red, rather showy when produced numerously.

Begonia incarnata and miniata rosea.—These two Begonias I can strongly recommend to those who require cut flowers and plants for decorating purposes. The former produces its blossoms very freely; in fact, the plants are a sheet of bloom, of a beautiful pale pink colour, and they retain it longer than most varieties. *Miniata rosea* is a pink kind, in the way of fuchsoides, but much more floriferous; they both do well in an intermediate house. We place all our winter flowering kinds out in full sun, from June till September, by which time they are a mass of bloom, and continue flowering all the winter.—H. J. E.

Varieties of Cœlogyne cristata.—The two forms of this Orchid, one with a deep orange colour, the other with a pale lemon crest, are flowering side by side in the Kew collection, and their distinctness is therefore very apparent. Both are lovely flowers, but probably most people would prefer the lemon crested flower, which is called here *Lemoniana* (in compliment to the late Sir Charles Lemon, of Carclew).—G.

NOTES AND READINGS.

That pretty little picture in THE GARDEN of Daffodils in a shrubbery suggests possibilities in the way of spring and early summer gardening that are just beginning to be realised. It is a style of "spring gardening" that does not necessitate the annual planting and removal of the plants, and which needs the least care and attention. Whatever may come of the conflict between the hardy plant and the bedding-out advocates, the latter will not at least object to planting Daffodils, Hyacinths, Primroses, Crocus, and Snowdrops, &c., about the margins of lawns and shrubberies. There is usually a debateable margin between walk verges, and the shrubbery or wood, and at the margins of lawns where corners exist which can be utilised in this way. One effect of the stubborn fight made for hardy plants is, that some of our seedsmen are now selling bulbs, &c., by the sackful to plant for naturalisation in gardens, large ones too, where no such things existed before, and which had nothing to show save their flower beds after these were planted and grown. We have seen men, once on a time, weeding Primroses out of the pleasure garden, but now we hear tell of old and middle-aged gardeners, once belonging to the Goths and Vandals, who are absolutely planting them where they were once an eyesore, and nurserymen are also advertising common wild Primrose roots at 5s. per hundred, and selling them, too! Hitherto, Wordsworth's "sea of dancing Daffodils" has only been a figure of speech among gardeners, but it is likely now to become a reality, and something more. It is a kind of half-wild gardening that may be at once put in practice

by any one, as all that is needed is to get the bulbs and roots and dibble them in, and the chief secret is to plant plenty and keep at it.

*
"Paragon" has been trying to "mend" matters respecting his "midwinter" visit to Drumlanrig, and with the result usual in such cases. The snow and the frost which he dwelt on so much were, it now appears, "wild imaginings," so far as Drumlanrig was concerned. But I know better, "Paragon," and so do you. I know, for example—and no doubt you were told—that the thermometer had gone down to zero and lower as far back as November last in the south of Scotland, and Drumlanrig had its fair share of the frost and snow too then and even before that period, as well as after it. Then just about the time of "Paragon's" visit (midwinter, or before it), and, as Mr. Thomson has stated in the *Gardener*, published at the beginning of February, they had 247 $\frac{1}{2}$ ° of frost in ten days at Drumlanrig, the severest frost for twenty years back. Further, has not "Paragon" himself told us that on the day of his memorable visit to that long border which he expected to show what could be done with hardy plants, he was "quite dazzled" by the reflection of the sun's rays from the icicles with which the trees were "draped" in the vicinity of the gardens. Trees do not bear icicles when hardy border flowers are at their best. In one of the worst winter climates of Scotland, in the middle of one of the severest winters on record, when vegetation generally was wrapped in ice, and when the ground had been, and was, frozen as hard as iron—these were the circumstances under which "Paragon" visited the herbaceous garden at Drumlanrig, and saw and judged of the value of hardy gardening, of the value of such subjects as Lilies, Phloxes, Carnations, Narcissi, Spiræas, Iris, &c., &c., and pronounced them a failure and a disappointment. "Surely a patch like this, planted as it is with the best selected hardy plants and flowers, ought to show at a glance what can be done with such plants, and it does. It was simply naked and bare, so far as flowers were concerned. There is no denying the fact the result is not encouraging." These are "Paragon's" words, written, probably, when his fingers were freezing to his pencil. I take it for granted that "Paragon" will think twice before he ventures into print again.

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An article on transplanting trees in another paper strikes one as being the production of a practical hand. The general assertion that "practically trees up to at least fifty years old are now portable, they may be lifted and conveyed twenty or a hundred miles with impunity," is one of those rash statements that a thoughtful, experienced man would not make who realised the disastrous results that might accrue from them. That trees of almost any age can be moved by exceptional means and appliances we know, but transplanting trees fifty years old and upwards is not a thing to be undertaken lightly in a general way, with even the best ordinary appliances at command, and certainly not a task to tell all and sundry they may attempt "with impunity." We doubt if the leader-writer in the *Gardeners' Chronicle* has ever transplanted a fifty-year-old tree in his lifetime; we might go further, and say that though "mechanical difficulties have positively vanished," it is doubtful if this irresponsible and reckless arboriculturist could produce a single experienced planter either in this country or in France, "where they do these things better," who will either corroborate his statements or second them. We fear the late feat accomplished with a certain old Yew tree has set the imagination of the writer in question agog, hence his newly-fledged notions on the subject. There are several serious objections to the removal of old trees with the mere object of furnishing a landscape, as has been proposed. First, they rarely or never grow well afterwards, or increase in size; secondly, they require no end of "staying" to hold them up, and hardly ever acquire sufficient foot-hold to stand alone in a gale of wind; and lastly, transplanting is very apt to kill the subjects operated upon, and deep is then the disappointment. We have seen and read a good deal about transplanting trees of mature age, and can state that it is neither wise nor safe to meddle with trees above thirty years of age. It is almost a precarious operation with subjects of that age, but when they can be moved with good roots there is a fair chance of their growing and doing well, and they will produce quite as good an effect as trees twenty or thirty years older. It is, therefore, not necessary to move older trees at great risk. On a nobleman's estate where the transplanting of trees

up to 25 and 30 years of age has been going on on a considerable scale at intervals during the last 25 years, very fair success has attended the work, but much difference has been observed in the different species operated upon, some succeeding readily and growing fast, while others remained stunted and weak for years, but the proportion that have quite failed is not great.

The happy writer in the *Chronicle* takes no account of the different effects of transplanting on different species. Setting out with the assumption that "the theory of the irremovability of trees has been carried too far," he lumps them all together, and sees no difficulty with any up to the minimum age of fifty years. For the benefit of such as he we here transcribe a few of M. Édouard André's statements on such points from the "Parks and Gardens of Paris." They will probably be new and useful to many readers: "In choosing the tree to be transplanted its age and species must be considered. For instance, it is useless to remove a tree that is sixty or eighty years of age, as it will never produce as fine foliage as it did before its removal, nor will it make any remarkable progress in size. . . . The best age for transplanting larger trees is from 20 to 30 years. The number of species ordinarily removed is limited, as only the more common kinds of trees are subjected to the process, no one caring to run the risk of losing a rare or valuable tree. In Paris, experiments made on various species (up to thirty years of age) have given the following results: *Success nearly always certain*—Elms, Planes, Horse Chestnuts, Limes, Ailantus, Catalpa, Paulownia, Celtis, Planera, Sophora, and Willows. *Success uncertain, but sometimes satisfactory*—Poplars, Sycamores, Maples, Alders, Mulberries, Beech, Ash, Magnolias, Cercis, Diospyros, Walnuts. *Success very rare*—Robinias, Cratægus, Hawthorns, nearly all the Rosaceæ, Birch, Laburnum, and many Leguminosæ, Oaks (European and American), Pavia, Gleditschias." This experience corresponds with that of others in this country.

Some time ago we treated our readers to some of the curiosities of calendarial writing. Here is another in its way. As a long and skilfully constructed sentence that would have done credit to some of our older authors, whose sentences used to run their readers out of breath, it is not a bad example. It is from a column of "Orchid Notes" that was clearly meant for "Garden Operations"—

Though I would not have any of your readers think that I consider the present month a time when unusual activity is necessary, a time when extra watchfulness is required, or a season when a greater amount of labour is requisite in this department than at others—whilst I do not intend to convey the idea that there is just now such an abundance of work to be performed that if it is once done we may calmly wait and have little concern for the rest of the season—I, however, do mean, and desire to impress upon all those who have now for the first season, or it may be the second year, taken charge of a collection of Orchids, that the early spring months are times when every day is of very great importance, and every opportunity that offers itself should be utilised.

This paragraph-sentence just amounts to about one-fourth of the sum total of the article, written throughout in a similar style. What the author of it means apparently to say is that he does mean and does not mean what he says. But the pupil will not be far out if he accepts the last two lines as interpreting the writer's real meaning, viz., that spring is a time that should be made the most of in Orchid culture.

In another calendar, under the head of "Orchard houses," we find a reputed good cultivator recommending "the temperature of the house to be kept up to 65° at night in February, and an abatement to 60° in severe weather if the trees are out of flower. The day temperature of course will be proportionately higher, say from 15° to 20°." This is Pine stove treatment for Apples, Pears, Plums, and Cherries, &c. What do orchard-house cultivators say to this? it is a fact. The writer of "Gardening for the week," in *THE GARDEN*, more wisely gives the above figures as suitable for the day temperature, and recommends a proportion, and very considerable fall at night, and this at the same stage of forcing, of course. Very opposite practice this; one man recommending as a minimum temperature what another recommends for the maximum. It shows either that orchard house trees are very accommodating subjects, or that calendar writers differ to an astonishing extent.

The *Saturday Review* in one of those aimless articles with which

the press sometimes favours us on gardeners and on gardening accuses gardeners of drunkenness in the following passage: "Why gardeners should be so specially given to drinking fits is a physiological problem for which there may or may not be a solution; about the fact there can be no doubt." We fear our contemporary's experience of the race is confined to that of some town gardeners under depressing climatic or other influences, who have to vary their existence in this desperate manner, which Mr. Ruskin declares he also would have to resort to had he nothing better to do. Our experience of gardeners under healthy and usual conditions of country life is quite the reverse, their temperance being one of their distinguishing characteristics as compared with other people in the same sphere of life. PEREGRINE.

GARDEN DESIGN.

THE RAILWAY BANK TERRACE GARDEN.

A PECULIARLY striking example of a style of garden design that for a long time has had an injurious effect on country seats, and above all on the garden and park, was published by a contemporary recently; we allude to the railway embankment phase of landscape gardening madness—scenes in which one sees a series of sharply-graded slopes, exactly like well-smoothed railway embankments, more or less relieved by fountains, balustrades, &c. The extraordinary thing is that anybody supposed to be a professor of taste should suppose that a series of those, intercepting the whole landscape, so to say, should give permanent pleasure to any human being, or do anything but make a home landscape, as it were, formal and wearisome to the last degree. The man who designs such things may fancy on paper they look very pretty in his tracery, but when one comes to apply them to the landscape itself, and looking up a pleasant hill towards a house inhabited by English people, sees it thrown into intersections of huge sharply-graded banks, may, if he has an independent judgment, begin to wonder why people have been led to do so much harm to gardens in England through this fashion. Large sums of money have been invested in this way in forming embankments or terraces, whether the ground suited them or not. In these days of retrenchment, and indeed in all days, the labour of keeping up such places, preserving all their harsh angles, mowing, attending to the "compo" and the brickwork, the fountains, keeping the large areas of gravel clean, all these labours require much attention, and, as a matter of fact, few people can afford them. The cost of formation is so great, that naturally there is little left for the labour to keep it in order. Equally the true gardening, the culture of plants for their own sakes, and the annual planting of the finer trees—a thing which never should be neglected by those who have large estates or parks—is injured in consequence of excessive expense devoted to features that must eventually be pronounced worse than useless, and be removed or modified.

Hardy Gardening.—A friend writes: You cannot complain now at the rate of progress made in hardy gardening and want of examples. It is much to be thankful for that gardens are changing fast, and especially as regards growing bulbs, &c., about grounds and shrubberies. Our Primulas, Narcissi, Crocuses of all shades are coming up in swarms where they did not exist before. This nook-and-corner naturalisation all over the grounds is going to be an important feature capable of great development. It is easily done, and almost costless.—J. S. W.

Flowers of the Season.—The editor would welcome examples of rare or interesting flowers of the open air from those who grow collections of these plants. Notes on them, and a frequent record of the flowers of the year as they succeed each other are helpful to beginners and often valuable to others.

Robinson v. Johnson, Hegg, and May.—In this case, tried at Westminster last Tuesday, the jury found for the defendants, who pleaded that the matter complained of did not refer to the plaintiff or to *THE GARDEN*. We reserve our comments on the case for another week.

MR. J. CHILCOTT, who has for the last six years been foreman in the Culford Gardens, has been appointed head gardener to J. Paley, Esq., Ampton Park, Bury St. Edmunds.

WE regret an allusion to a "certain ducal garden" near Edinburgh was by inadvertence allowed to appear in an article on flower gardening in a recent number.

THE LIBRARY.

BOTANY OF CALIFORNIA.

A SHORT time ago (p. 265) we drew attention to the second volume of this admirable work by Mr. Sereno Watson, and promised to give our readers some idea of its character; we therefore subjoin his account of the

CALIFORNIAN LILIES.

The genus *Lilium* consists of nearly 50 species, of the northern temperate zone, extensively cultivated for their showy and often fragrant flowers. More than half are natives of Eastern Asia, and 4 or 5 species are found in the Atlantic States. The Californian species have lately been introduced into European gardens, and some of them are very handsome.

* Flowers spotless, or only finely dotted, white or purplish or pale yellow, the spreading segments with long narrow claws.

+ Flowers horizontal, large.

1. *L. Washingtonianum*, Kell. Bulbs large, somewhat rhizomatous and oblique (become 6 or 8 inches long), the thin im-



Californian Lily (*L. pardalinum*) in a London garden.

bricated lanceolate scales 2 or 3 inches long and not jointed: stem terete, 2 to 5 feet high, glabrous or slightly scabrous: leaves in several whorls of 6 to 12 (the upper and lower usually scattered), oblanceolate, acute or acutish, 2 to 5 inches long and 8 to 12 lines wide, more or less undulate: flowers very fragrant, pure white becoming purplish, or often sparingly and finely dotted, 2 to 20 or more in a thyrsoïd raceme, horizontally declinate on stout nearly erect pedicels 1 to 4 inches long; segments 3 to 4 inches long and 4 to 8 lines wide, the upper third spreading: stamens a little shorter, with yellow anthers 5 or 6 lines long; ovary 7 to 10 lines long; capsule obovate-oblong, truncate, obtusely 6-angled or sometimes narrowly winged 15 lines long or more.—Proc. Calif. Acad. ii. 13; also independently by Wood, Proc. Philad. Acad. 1868, 166; Regel, Gartenfl. t. 710; Fl. Serres, t. 1795.

In the Cuyumaca Mountains, San Diego County (Palmer), and on the western slope of the Sierra Nevada at an altitude of 3,000 to 6,000 feet, northward to the Columbia River. A beautiful species, growing in loose soil on ridges or lightly shaded hillsides.

2. *L. Parryi*, Watson. Bulb small, somewhat rhizomatous, of numerous thick jointed scales about an inch long: stem slender, glabrous, 2 to 5 feet high, 2–10-flowered: leaves usually scattered, sometimes the lower in a whorl, linear-oblanceolate, 4 to 6 inches long by about half an inch wide, mostly acuminate: flowers pale yellow sparingly and minutely dotted, on stout pedicels about an inch long; segments 3 inches long or more, 5 to 6 lines wide, somewhat spreading above or the tips at length recurved: stamens and style a little shorter; anthers oblong, brownish, 3 lines long; capsule narrowly oblong, acutish, nearly 2 inches long by 6 lines in breadth.—Proc. Davenport Acad. ii. 188, t. 5, 6, and l. c. 256.

In a marsh in San Geronio Pass, in the Coast Ranges of San Bernardino County; first collected by Dr. C. C. Barry in July, 1876, in flower.

+ + Flowers erect or ascending, smaller.

3. *L. rubescens*, Watson. Bulb as in *L. Washingtonianum*, but much smaller (about 2 inches in diameter), the thick broadly lanceolate scales an inch long: stem usually stout, 1 to 7 feet high, smooth: leaves glabrous, glaucous beneath, undulate or flat, the lower scattered, the upper in 3 to 7 whorls, oblanceolate, acute or acutish, 1 to 4 inches long and 6 to 12 lines wide: flowers usually several, on ascending pedicels 1 to 3 inches long, pale lilac or nearly white, becoming rose-purple, somewhat dotted with brown; segments $1\frac{1}{2}$ or 2 inches long, the upper third revolute: stamens and style a third shorter; anthers 2 or 3 lines long; ovary winged-angled, attenuate downward, half an inch long.—Proc. Amer. Acad. xiv. 256. *L. Washingtonianum*, var. *purpureum*, Masters, Gard. Cron. 2 ser. ii. 322, fig. 67; Elwes, same, vi. 242; Baker, l. c. 233.

On wooded hillsides in the Coast Ranges, from Marin (Bolander) to Humboldt Counties, Rattan.

** Flowers orange-yellow or reddish, mostly conspicuously spotted: segments oblanceolate.

+ + Flowers erect or horizontal, small.

4. *L. parvum*, Kell. Bulbs small, of short thick jointed scales a half-inch to an inch long, upon a branching rhizome: stem slender, $1\frac{1}{2}$ to 6 feet high or more; leaves scattered or in whorls, 2 to 5 inches long and an inch broad or less, sometimes linear, acute or acuminate: flowers 2 to very many (30 to 50), erect or nearly so on slender suberect pedicels 2 to 4 inches long, scattered or somewhat verticillate, yellow or orange within and usually spotted with purple, reddish above; segments narrowly oblanceolate, 1 to $1\frac{1}{2}$ inches long, more or less spreading or the tips recurved, pubescent towards the apex: stamens an inch long, nearly or quite equalling the style; anthers oblong, 1 or 2 lines long; capsules subspherical, 6 to 9 lines long, truncate above.—Proc. Calif. Acad. ii. 179, fig. 12; Regel, Gartenfl. 1872, 163, t. 725; Elwes, Monogr. Lil. t. 24. *L. Canadense*, var. *Walkeri*, Wood, l. c. 166. *L. Canadense*, var. *parvum*, Baker, l. c. 241; Hook. f. Bot. Mag. t. 6141.

In the Sierra Nevada at an elevation of 4,000 to 8,000 feet, and northward into Oregon. Distinguished from *L. Columbianum* by the different bulb, and by the smaller less nodding flowers, their segments less recurved.

5. *L. maritimum*, Kell. Bulb conical, 1 to $1\frac{1}{2}$ inches in diameter, with close-pressed scales: stem a foot or two high or more, slender: leaves scattered or very rarely somewhat verticillate, narrowly oblanceolate or linear, 1 to 5 inches long and 3 to 6 lines wide, obtuse; flowers 1 to 5, on long peduncles, horizontal, deep reddish orange, spotted within with purple; segments lanceolate, 15 to 18 lines long, the upper third somewhat recurved: stamens scarcely an inch long, exceeding the style, with oblong anthers 2 lines long: "capsules long and narrow."—Proc. Calif. Acad. vi. 140. *L. Canadense*, var. *parviflorum*, Bolander, same v. 206.

Near the coast, in low black peaty meadows, from San Francisco to Humboldt County (Kellogg & Hayford, n. 997); Albion and Noyo swamps (Bolander, n. 4827, 6557); flowering from May to August. According to Bolander, it grows when in sheltered situations to a height of 3 to 5 feet, bearing numerous flowers.

+ + Flowers nodding, larger, with revolute segments.

+ + Bulbs rhizomatous.

6. *L. pardalinum*, Kellogg. Rhizomes thick and branching, forming mat-like masses of roundish oblate bulbs, the scales jointed near the base: stems 3 to 7 feet high: leaves usually in 3 or 4 whorls of 9 to 15, scattered above and below, narrowly lanceolate and sharply acuminate, 3 to 7 inches long and 9 to 12 lines broad, deep green, thin and faintly 3-nerved, glabrous and glaucous, as also the stem: flowers few to many, racemose or the lower in whorls, or long spreading pedicels; segments 2 or 3 inches long and 6 to 9 lines wide, lanceolate, strongly revolute, bright orange-red with a lighter orange centre and large purple spots on the lower half: stamens and style a third shorter; anthers red, 4 or 5 lines long; ovary 12 to 14 lines long: capsule narrowly oblong with acutish angles, $1\frac{1}{2}$ inches long or more, umbilicate at the summit.—Proc. Calif. Acad. ii. 12; Baker, l. c. 242. *L. Californicum*, Lindl.; Florist, 1873, t. 33, *L. superbum*, var. *pardalinum*, Baker, Journ. Hort. Soc. 1873, 45. *L. Canadense*, vars. *pardalinum* and *Californicum*, Bolander, l. c.

Var. *angustifolium*, Kell. Stem slender, 2 or 3 feet high: leaves scattered or somewhat verticillate, linear (3 or 4 lines broad), obscurely 3-5-nerved: flowers 1 to 10, with narrow segments.—Watson, l. c. 258. *L. Canadense*, var. *Hartwegi*, Baker. *L. Roezli*, Regel, Gartenf. 1870, t. 667; Baker, l. c. 243.

From Central California probably to Oregon, in the Coast Ranges and foothills of the Sierra Nevada to an altitude of 4,000 feet, on stream-banks and in wet localities; the variety on moist slopes in the lower foothills. Roez's reported locality for the variety (mountains of Utah) was doubtless a mistake. It has also been found in the Santa Cruz Mountains (*Hartweg*) and in Humboldt County, Kellogg.

* * * *Bulbs ovoid, with fleshy lanceolate imbricated scales.*

7. *L. Humboldtii*, Roez & Leichtlin. Bulbs large, 2 to 6 inches in diameter, white or purplish, the very fleshy ovate-lanceolate acute scales 2 or 3 inches long; stems stout, purplish, puberulent or glabrous, 4 to 8 feet high: leaves usually in 4 to 6 whorls of 10 or 20 each, oblanceolate, undulate, 4 or 5 inches long and 9 to 10 lines wide, acute, bright green, somewhat scabrous or pubescent on the margin and beneath: bracts often ovate: flowers few to many, on usually stout and widely spreading pedicels 3 to 6 inches long or more, scattered; segments 3 or 4 inches long, 6 to 12 lines broad, strongly revolute above the short abruptly narrowed claw, reddish orange with purple spots, papillose-ridged toward the base; stamens $1\frac{1}{2}$ to 2 inches long, about equalling the style, with red oblong-linear anthers 4 to 8 lines long: capsule large, obovoid, acutely 6-angled.—Duchartre, Obs. 105; Regel, Gartenf. 1872, t. 724; Fl. Serres, t. 1973: Krelage, Not. de Lis, 27, t. 4. *L. Canadense*, var. *puberulum*, Torr. Pacif. R. Rep. iv. 146. *L. Bloomerianum*, Kellogg, Proc. Calif. Acad. iv. 160, and var. *ocellatum*, same, v. 88, t. 4.

In dry open localities in the foothills of the Sierra Nevada at 2,500 to 3,500 feet altitude, southward to San Diego County (*Palmer*) and Santa Rosa Island off Santa Barbara, *Harford*.

8. *L. Columbianum*, Hanson. Bulb small, $1\frac{1}{2}$ to 2 inches in diameter, with lanceolate acute closely appressed whitish scales: stems 2 or 3 feet high or more, slender: leaves in whorls of 5 to 9 or sometimes more, the upper and lower scattered, oblanceolate, 2 to 4 inches long and 6 to 15 lines wide, acute, smooth: flowers few to many, scattered, on slender curving more or less divergent pedicels 3 to 6 inches long; segments $1\frac{1}{2}$ to 2 inches long and 4 to 6 lines wide, strongly revolute, bright reddish orange thickly spotted with purple: stamens about equalling the style, 12 to 15 lines long, with yellow oblong anther 2 or 3 lines long: capsule short-oblong, an inch long, acutely 6-angled.—Baker, Gard. Chron. 1871, 1257, and l. c. 243. *L. Canadense*, var. *parviflorum*, Hook. Fl. Bor.-Am. ii. 181. *L. Canadense*, vars., Wood, l. c. 166. *L. lucidum*, Kellogg, l. c. vi. 144.

Frequent in Washington Territory and Oregon, and southward in the Sierra Nevada to Plumas and Sierra Counties.

PASTORAL DAYS.*

THIS book is an elegant proof of the great and skilful attention which has been given to the art of wood-engraving in America during the past few years. The art of drawing and engraving on wood in its finer developments is of the most precious importance in all book and journalistic work, because it enables one to portray so perfectly with the same process, and at the same rapid rate as ordinary printing; other modes of reproducing require what is called separate and special working, and, therefore, are slow and costly in reproduction. In matters concerning our own work proper engraving is of the utmost importance, being, in fact, properly carried out, a good substitute for seeing the things themselves—eye instead of ear demonstration. Our own country was at one time famous for the best engraving, and from us the French and the Americans took some of their best men, but the advent and the success of our great illustrated papers destroyed to a great extent our own school of fine engravers; the larger rougher touch of the illustrated journal was more in request and more profitable than the really fine skilful artistic work. The result was, that our school of engravers became such that it was almost impossible to get good work done. A few years ago attention began to be directed to the matter in one or two popular magazines in America, and by the aid of some good artists from England and France, and also a considerable amount of young native talent, the Americans have founded a very remarkable school of wood engraving, as anybody may see by glancing over one number of *Scribner's Monthly* or *Harper's Magazine*. The book we now notice is issued by Harper's in America, and published here by Messrs. Chatto & Windus. It is devoted to the illustration of pastoral life and pastoral scenes in New England, and from the exquisite way in which the engravings are done, cannot fail to charm those who see it. We seem in a land with some of the picturesque beauty of the "old country," but with strange wild flowers and Grasses, and

vegetation which is not exactly ours, but which is none the less beautiful. Occasionally in the graceful groupings we note some pretty plant, as yet a rarity in our gardens, or only cultivated in the gardens of those who have good collections of hardy flowers. Here the Golden Rod may be seen in its wild grace, the May Flower, the Hepatica, and, most delicate of all, the curious and pretty little white Anemone. The little bunch of American spring wild flowers is charming; so is the Columbine on page 38, soft, artistic, delicate, true. The orchard picture on page 43 might have been taken in Kent or Herefordshire, so graceful and so homelike is it. The Dandelion is quite impertinent in its interference with the old conventionalities of engraving, the little down of the seed scattering itself all over the page, as it does through the air. The native Ferns are beautifully drawn, and also what the New England people call Blue Flag, an Iris which we probably have not in cultivation here. The Sedges, water-side plants, Brambles, Willows, and trees all come in for refined and artistic illustrations in this charming volume. It cannot fail to foster a love of the beautiful in all who see it.

THE INDOOR GARDEN.

CHINESE PRIMROSES, SINGLE AND DOUBLE.

THESE, like most other flowers, have been greatly improved of late, and instead of seeing plants with thin flimsy blooms about the size of a shilling, as used to be the case, it is no uncommon thing now to meet with them as large as a crown-piece, with beautifully serrated edges and of great substance, which thickness of petal not only adds to their fine appearance, but renders them more lasting, as they are less affected by damp. Great and striking as has been the advance among the single kinds, the doubles have not been left behind, for among these we have many that are remarkably handsome and of various shades of colour, the pinks and pale lavenders being of the most exquisite softness and finish. Those sent out by Messrs. Osborn, and which were so well figured in THE GARDEN, are sure to become great favourites, especially with those who have to make up bouquets, a purpose for which double Primulas are particularly adapted, the flowers being just the size and form required for working in either singly or in small bunches just as they grow. Besides the doubles there are semi-doubles, a race that may be perpetuated from seed the same as the single kinds, but the real doubles can only be increased by means of cuttings or divisions of the old plants, which may be made any time now, or as soon as they have done blooming.

Before effecting the separation it is a good plan to let them go dry a while, that the sappy juices may be got rid of a little, as then they are not so liable to damp or rot off as they otherwise are. In taking the cuttings or making the divisions, as much of the base as is sound and good should be secured, and having trimmed that part of all remains of leafy stems or loose matter, the cuttings will be ready for inserting. This should be done singly in small pots in sharp, sandy soil made up principally of peat and leaf-mould, in which, if kept just moist, Primulas root freely. To enable them to do this, however, a somewhat close atmosphere is necessary, and this may be afforded them either by placing them under hand-lights in any warm house or by using a shady back shelf in a stove.

To be successful in propagating double Primulas, the thing is to do without watering, if possible, and to keep the leaves fresh, which may be effected by giving a gentle bedewing occasionally by means of the syringe, but never sufficiently heavy for the water to run down into the hearts. If heated after the manner adverted to above, they will be fit for potting off in a month or so, by which time the weather will be warm enough for them to be stood in any cold frame or pit, a situation which suits Primulas well during the summer. The frame, however, must be so placed as to have natural shade, such as that afforded by a wall, tree, or building, which is far better than laying anything on the glass, as when that is done, light is obstructed, and the plants under such circumstances become drawn, and are never so strong as when more fully exposed. To keep the surrounding air moist there is nothing like a coal-ash bottom for the pots to stand on, as it is not only cool, but remains damp, and if of moderate thickness is quite impervious to worms, reptiles that are a sore trouble if they get into soil in which delicate-rooted plants are grown. In giving Primulas their final shift, 6-in. pots will be found quite large enough, and these should be well drained by having a handful of small crocks at the bottom, and on these a pinch of half-rotten leaves, that the interstices may be kept clear and open. The soil most suitable for growing fine Primulas is about one part loam to two of leaf mould, with a good dash of sharp sand to insure its porosity. As to summer treatment, that consists in free ventilation, which is best effected by tilting the lights at the

* "Pastoral Days; or, Memories of a New England Year." Illustrated. By W. Hamilton Gibson. (London: Chatto & Windus, Piccadilly. 1881.)

back, but during the early part of the season, and after any repotting, the frame should be closed early in the afternoon and the plants damped overhead, when the genial atmosphere this engenders will greatly expedite growth. It should be borne in mind that to keep *Primulas* healthy and the foliage a good colour, they must always be moist at the root, and as soon as they begin to show bloom, liquid manure is a great help, but this should be given weak and continued at regular intervals, as they require it all through the winter.

To have double *Primulas* really fine, then, they must have a night temperature not lower than 50°; and to get their flowers to colour well, plenty of light is essential, or the pinks and lavenders fade off into whites. This change of colour has caused some disappointment about the three raised by Mr. Gilbert, of Burghley, and many have pronounced them alike, but that they are distinct, or that they afford different shades of colour, there can be no doubt, as may be seen when treated together. As regards the singles and semi-doubles, those who would have them early should obtain seed and sow at once, and to keep up a succession it will be necessary to get in another lot later on. To get them to germinate freely much care is required, and the way to insure the greatest amount of success is to have a pan and fill it a little more than three-parts full of finely-sifted leaf-mould mixed with a small portion of loam and sand, and, having made the surface very smooth and level, then to sow the seed regularly over the surface, when it should be just covered with sandier soil, and have a piece of glass laid over the pan to prevent the escape of moisture. If then stood in a Cucumber frame or other position of about equal warmth, the seed will soon be up and the plants ready for pricking off, which may either be done singly in small pots or a dozen or so together in other pans, to grow on till they gain more size; but whichever is done, they must again be nursed in gentle heat till the middle or end of May, when they will be fit for transferring to frames to be treated as already touched on for the doubles. Single kinds are often so good as to make it worth while keeping them, and if any old plants are shaken out now and repotted, and again shifted on by-and-bye, they will make grand masses by the autumn that will afford immense heads of bloom. S. D.

CLITORIA TERNATEA.

THIS pretty Pea-flowered plant is one of those that one seldom sees except in a botanical collection, though it is far more beautiful than many that are of frequent occurrence. It is an occupant of the stove, in which it delights to twine its slender branches around a pillar or other support. The flowers are lovely, being of a clear azure blue, set off by a horseshoe-shaped ring of pure white. Those shown in the annexed woodcut are about half the natural size. Several varieties of this *Clitoria* exist, all of which differ from each other, chiefly in their flowers. There is *alba*, a pure white-flowered kind; *cœrulea*, with entirely blue flowers; and *major*, a large flowered variety with brown flowers, and which



Clitoria Ternatea.

thrives in a greenhouse temperature. The leaves are evergreen, and are divided into leaflets, but the specific name does not imply that the leaves are ternate, or that the divisions are arranged in threes; on the contrary, it is derived from the plant's native habitat, the island of Ternate, in Malaysia, whence it was brought into cultivation a century and a half ago. It is of easy culture in a stove

temperature, merely requiring to be treated as an ordinary stove plant, but care must be taken not to overpot it, and above all to keep it free from insect pests. Seeds of it may be procured from Messrs. Haage and Schmidt, of Erfurt. G.

FUCHSIA SERRATIFOLIA.

In common with most kinds of *Fuchsia*, this is seen to the greatest advantage when trained under the roof of a warm greenhouse or conservatory, and its long, pendulous branches allowed to hang



Fuchsia serratifolia.

down naturally. Under such conditions its bright red flowers are freely produced, even during the winter months. In an ordinary greenhouse it is nearly, or quite, deciduous, and if rested as other *Fuchsias* are, will, when started in spring, flower freely after the young growth is sufficiently developed, and will continue to do so during the summer and autumn. Many of the species of *Fuchsia* are, as a rule, greatly neglected, yet they are very beautiful, and can even be enjoyed where there is no greenhouse, as this kind, in common with several of its congeners, stands the winter well if protected, and in spring throws up shoots so freely as to form a handsome bush, which flowers until frost sets in. Between this species and *F. Dominiana* several hybrids have been raised which for winter flowering have been found to be very useful. They are of compact habit, and therefore suitable for pot culture, in which state they can easily be introduced into a rather warmer structure to open their blossoms than that in which they have been grown. Another species much resembling *F. serratifolia* in habit, but with larger leaves and flowers borne in clusters, and even more showy, is *F. corymbiflora*. The elegant little *F. microphylla* and *thymifolia*, too, must not be overlooked; and what two flowering shrubs are handsomer than *F. gracilis* and *coccinea*, which grow out of doors everywhere on our southern coast? H. P.

LIBONIAS AND THEIR CULTURE.

ANY one having greenhouses or conservatories to keep gay during the winter should not fail to grow these, as unquestionably they are among the most useful plants that can be had for the purpose, flowering as they do, when well managed, for months in succession. The most showy is *L. floribunda*, but, seen as one often sees it, its specific name would appear misapplied, as instead of having an abundance of flowers, the plants are more frequently full of leafy growth without bloom, a state induced through want of ripeness of the shoots, a condition they only reach when fully exposed to sun and light during the summer and autumn. If grown in pots the best way is to plunge them in some non-conducting material in a frame or pit where they can be treated by themselves, and have the lights removed and left off both day and night whenever the weather is favourable. This exposure causes a sturdiness of habit and a firmness of wood that cannot be got under any other management, except by planting out, which answers well in anything like an ordinary season, provided a sheltered situation is chosen, and the soil is a little prepared to receive them.

If planted out, it is a good plan to dig holes at about 15 in. or 18 in. apart, and to fill them with fresh sandy soil containing leaf

mould, in which, pressed firm, the plants root freely and may be lifted with good balls in the autumn, when they should be potted and placed in a frame where they can be syringed and kept close for a week or two till they become re-established, when they may at once be removed to the greenhouse. Whether planted in the open or grown in pots, they must at no time suffer from want of water, as that causes a shedding of the leaves or makes them turn yellow and shabby looking, from which they never recover. To keep the foliage fine and healthy, liquid manure is a great help, but this should never be given strong, as it is much safer and better to apply it frequently than to over-dose at any one time. If large plants are wanted, the way to get them is to cut back any that have done flowering and put them in a frame or pit where they can have a little artificial heat afforded them to assist them to break, when they should be shaken partly out of the old soil and re-potted in fresh, and then returned to the pit or frame again and treated as before to give them a start. By the end of May, or early in June, they will be ready for turning out if previously hardened, or they can be grown under glass, and treated in the way already adverted to above. Cuttings made of the tips of the shoots root readily, and any put in now will soon strike, and may be got up to a useful size by the autumn. For such as these, 6-in. pots are quite large enough, in which they are very handy for furnishing purposes, and come in most serviceable for stands in windows to associate with *Hyacinths*, *Mignonette*, and other low growing things of that character.

There is another *Libonia* of great merit, a cross between *L. floribunda* and *Scricographis Ghiesbreghtii*, which in habit and general appearance is intermediate between the two, and possessing the good qualities of both; it is an exceedingly desirable plant to possess. The name of this hybrid is *L. penrhosensis*, which requires much the same treatment as the other, but being of smaller growth should not be cut back, and only just stopped by having the points of the shoots nipped out when starting the plants again in the spring. S. D.

TROPICAL AQUARIA.

Few features under glass are more ornamental or attractive than a well-arranged tropical aquarium, and there is nothing, perhaps, which better helps to illustrate the magnificence of tropical vegetation. The peaceful scene represented in the accompanying picture is but a suggestion of what may be accomplished. We find in it no intrusion of pots or slate tanks; nothing but a natural arrangement. In order to imitate Nature under glass we should, if possible, have an irregular piece of water, and with it the association of tasteful rockwork, which is both convenient and useful. The ground must slope to the margin of the water, except where rockwork is intended to predominate, for the cultivation of such plants as *Philodendron*, *Nepenthes*, various *Begonias*, and others. The banks will afford suitable positions for the dwarfier *Bamboos*, *Alocasias*, small *Palms*, &c., and by providing wet bays, such kinds as *Nelumbium* and *Papyrus* can be made to flourish. The water would require a definite margin of cement, or some other unobtrusive material, but this would be easily covered, as there are several plants which would grow well where wind and water meet. No exposure of bare ground would be in harmony with the present plan, and between the specimens we should plant *Selaginellas*, or something of similar habit; variety would not be suitable, and a sward of *Selaginella* would perhaps answer best. At the same time various nooks and corners would present themselves for choice species of low-growing plants. The shape of the tank in which tropical water plants are usually cultivated varies, but it is, as a rule, about 2½ ft. deep, and if the *Victoria* is cultivated a depression is made in the centre for a few loads of soil. Other aquatics may conveniently be grown either in tubs or pots, but such fine plants as *Nelumbium* are decidedly best planted out. All aquatics are fond of sun, and if the *Victoria* or *Nymphaea* are expected to flower well they must not be much overshadowed. If the house is of considerable height a few *Palms* or other water-loving plants may stand around the tank, with their pots a few inches in the water; this does away with an otherwise intolerable emptiness, and many plants such as *Palme*, *Alocasias*, and other *Aroids*, *Carludovicas*, *Rice*, &c., are greatly benefited by such treatment in summer. The best summer temperature for a collection of aquatics is about 85°, and this may be allowed to rise during the day by sun-heat. An important accessory to the principal tank is a smaller one for raising seeds and preserving choice plants in winter, especially if the large tank is emptied at that season. Its size must be regulated according to circumstances.

Ceratopteris thalictroides is the only truly aquatic Fern in cultivation, and it makes when well grown a very handsome specimen. It is an annual, but the fronds are prolific, and produce many plants. These, however, are not worth consideration, as spores of it grow with the greatest certainty. They should be sown on the surface of the soil, and the pot must not at first be deep in the water, or the spores may be washed away. After germination the pot may be sunk slightly below the surface, and the seedlings, when easily handled, should be pricked off four or five into a pot. These little tufts are then shifted forward without separation. Though so easily grown, fragments of this Fern when disturbed by transit from a distance are often difficult to establish. Several Ferns are nearly aquatic in habit, and one of the finest of them is *Acrostichum aureum*, which in the West Indies is said to answer in habit to our Royal Fern.

Eurylea ferox is an Indian Thorny-leaved ally of the Royal Water Lily, but not nearly so handsome or gigantic in stature. The leaves, in which its chief beauty resides, are purple in colour and puckered on the surface. It is an annual, and quickly develops; therefore if sown before the first week in March it may be too early for convenience as regards accommodation. It requires precisely the same treatment as the *Victoria*, but being much smaller it may be successfully grown in a pot.

Limncharis Humboldtii is a plant of great beauty, and one which blossoms all the summer. It has slender stems, and floats on the water, but must be allowed to root in a pot. Its leaves are nearly round, and its flowers, which are of considerable size, are yellow in colour.

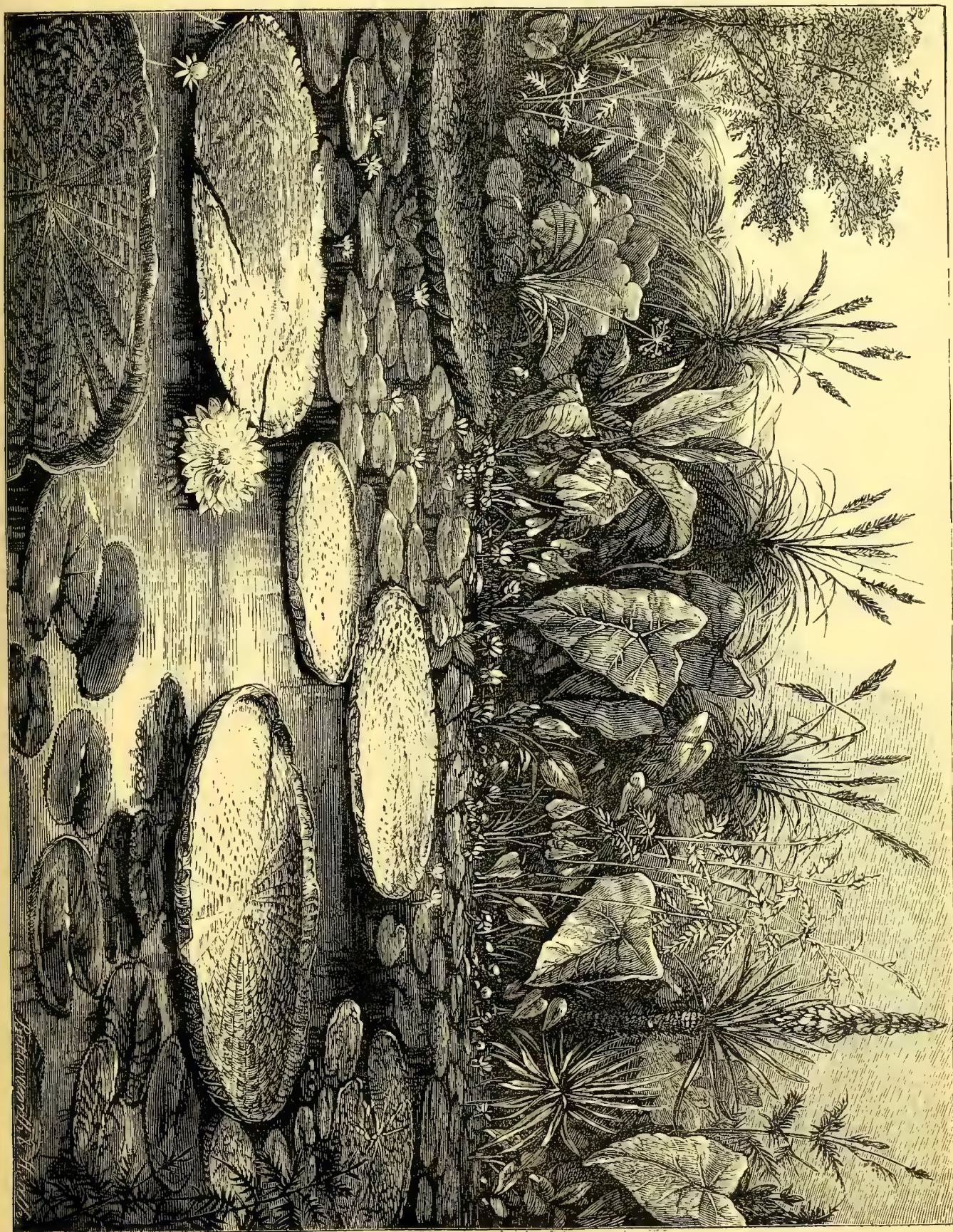
L. Plumieri, a rare species, is quite unlike the last, but, nevertheless, very interesting. It grows erect, and bears long-stalked, roundish leaves, and erect scapes, on which are produced several flowers of a yellow colour. It is of more than annual duration probably, but seeds should be saved each year for sowing in spring. Unlike *L. Humboldtii*, it does not float; it does well as a margin plant for clumps of *Nelumbium* or *Papyrus*.

Monochoria hastæfolia and *M. vaginalis* resemble each other in appearance. They grow erect, and have arrow-shaped leaves and blue flowers like those of *Pontederia*, a genus to which they are related. Both are handsome plants, and easily grown from seeds.

Myriophyllum proserpinacoides.—This is the correct name of the plant hitherto known as *Herpestes reflexa*. It has recently flowered in the Cambridge Botanic Garden, and so has revealed what it is, *Herpestes* being a provisional name. The flowers are inconspicuous, but as is now known to many, its foliage is extremely graceful. For this reason we mention it here, as it is well adapted for tropical culture. Cuttings of it grow with facility. It is a native of Brazil, and was introduced into this country about three years ago.

Nelumbium speciosum (the Sacred Bean of India) is indispensable in a collection of water plants. There are many forms of this species, all of which appear under specific designations. Of these *N. aspericaule* is the best I have seen. It has large, deeply-coloured flowers and is said to be harder than the type. This is an advantage, since, from the wide geographical distribution of the species, it probably varies much in hardiness. If it is desired to grow this out-of-doors, it would be desirable to obtain tubers from a cold country, as, for instance, Pekin, to the rigorous winters of which it submits perfectly. There is, however, a difficulty as regards our comparatively sunless summers. If we cannot afford the plant favourable conditions during that season, it is useless to expect it to live through a winter even much milder than is natural to it. The *Nelumbium* is best propagated by division of the tubers. Seeds, too, grow readily, but generally fail to produce tubers, by which the plants are to live through the first winter. Seeds should have their hard skin cut through at one end; if this is not attended to they lie dormant an indefinite time. They retain vitality for perhaps forty years. The *Nelumbium* may be successfully grown in pots or tubs, but, as already said, it should be planted out in good loam.

N. luteum (the Golden Swamp Lily of North America) is much more rare than *N. speciosum*, but requires the same treatment. Both may be tried out-of-doors, but the best success will be obtained under glass. *N. speciosum* is grown out-of-doors in



A Tropical Aquarium.

the Jardin des Plantes, but it is protected by a glass covering in winter. It grows there in a confined well.

Nipa fruticans.—This now grows in the tidal waters of the Indian Ocean, but nuts of a similar plant abound in the tertiary formations at the mouth of the Thames. It is allied to the Pandanus, Cyclanthus, and the Palms, but on account of its pinnatisect fronds it bears the greatest resemblance to the last. It is of much botanical interest, but of little ornamental value.

The Nymphæas (or Water Lilies) are undoubtedly the finest of all water plants. There are many species and varieties of them, all of which are beautiful, and among them are found reds, blues, and whites. Some are grown with great facility, and none can be considered difficult. They are cultivated with success in the Oxford Botanic Garden, where they remain in water the year round; and this appears to be the best way of treating them. When growing, they require the fullest light, and therefore must not be overshadowed by Palms or other plants. They may be grown either in pots or tubs, and, if space is limited, should not be more than 6 in. under water. Mr. Baxter, the curator of the Oxford Garden, finds that in this way the leaves do not spread as they do in deep water, while the plants flower profusely. Increase is effected by division of the tubers or by seeds, which grow easily, and need not be kept in water. Loamy soil, stacked with manure in it, suits all the kinds perfectly. Among the best are the "Blue Lotus" of the Nile (*N. cœrulea*) and the "White Lotus" of the Nile (*N. Lotus*), which has white flowers tinged with pink. Then there is a very fine and distinct blue species from Eastern and Northern Australia—*N. gigantea*—well worth possessing. Another blue kind is *N. scutifolia*, and a fourth is *N. stellata*. Of *N. Lotus* there are several varieties, among which may be mentioned *dentata*, *rosea*, *rubra*, and its sub-variety *Devoniensis*, the finest of the group; there is also a minor form of *rubra*. The best white to be considered tropical is *N. blanda*, a native of Trinidad. It is interesting, also, to grow *N. micrantha*, and, if we remember rightly, *N. Daubneyana*, a kind which produces buds which grow into plants on the blade of the leaf at the junction of its petiole.

Ouvirandra fenestralis (the Lattice-leaf plant of Madagascar) is one of those capricious subjects which grow sometimes without care, and at others can scarcely be made to grow at all. It succeeds best in a compost of three-fourth fibrous loam and one of sand, to which a little manure may be added. Peaty soil, in which it has sometimes been grown, does not appear to answer equally well. Rain water is essential for it as a rule, and frequent fresh supplies should be given it. It is best to grow it in a tub, clear of other water weeds.

Papyrus antiquorum (the Paper-Reed) is perhaps the noblest of all the Cyperacæ. Like the Lotus of the Nile, it is of great interest on account of its Egyptian associations. It bears immense plumes of long green bracts mounted on tall stems. In summer it may be placed out of doors for sub-tropical effect, but it only grows luxuriantly in a high temperature. There is no difficulty in its propagation if small shoots of it are obtained by stopping a rhizome. Sometimes, when rooted out and laid aside on mud, a number of shoots are produced, which, taken off, quickly become useful plants, and grow rapidly to a considerable size. It flourishes best in a large tub, or equally well if planted out, when it makes a fine central specimen.

Pistia stratiotes (the Water Lettuce) is a floating plant, but, like every other floating plant, it grows most luxuriantly on mud covered 1 in. or so with water; then, however, it loses the greater part of its interest. It consists of charming rosettes of greyish-green leaves, from among which grow numerous runners that produce new rosettes, and thus the plant is rapidly propagated. It is sometimes difficult to keep alive in winter, but only because of insufficient light or heat.

Pontederia azurea is one of the most important of recent introductions, and one of the loveliest of water plants. It is infinitely superior as regards flower to its allies, and curiously enough the frequently cultivated *P. crassipes*, which differs totally from it in habit, has been mistaken for it. A coloured plate of it was given in THE GARDEN (p. 220) last year, and also a woodcut illustration of *P. crassipes*. The habit of *P. azurea* is to produce long branches which flower as they grow. It is increased by rooting the shoots or by cuttings. Mr. Baxter, who has been very

successful in growing it, finds that it flowers well out-of-doors in summer. *P. crassipes* rarely flowers, but surpasses *P. azurea* in neatness of habit. It will grow without soil, floating freely on the water like the Water Lettuce. Each crown produces a colony around it, attached by short stems. The leaves grow in neat rosettes, and have gouty-looking stalks, which enables the plant to swim and give it an odd appearance. The crowns when about half grown form attractive little specimens if placed singly in jars. If it is desired to attempt to flower it, the root must be in soil, but then the leaves become elongated, and lose the attractive expansion of the petiole.

Vallisneria spiralis.—This is not necessarily grown in a tropical aquarium, but in such warmth it attains unusual length. It grows with great facility, but it is worth pointing out that the sexes must be carefully kept apart, otherwise it will be found after a time that the female has entirely displaced the male, which appears to have the least vegetative vitality.

Victoria regia (or Royal Water Lily).—This, the noblest of water plants, has been so often described, that I shall on this occasion only speak of its culture. As will be seen, it occupies a conspicuous position in the annexed illustration. The seeds, which require to be kept in water, are best sown about the 1st of January; if sown earlier nothing will be gained, and if later time will be lost. The soil in which they are sown should be loamy, and when used for the plants afterwards, some manure and leaf-mould should be added to it. Early in February the seedlings will appear, and about six should be potted in 3-in. pots for after selection as growth continues. The next shift will be to 5-in. or 6-in. pots, from these to 7-in. pots, and then to 9-in. ones, or from the 6-in. pot a shift may be made direct into the 9-in., which is always large enough before planting out. The crown should never be more than 1 in. beneath the surface of the water. Shifting should be attended to before the roots are much interlaced, and it is necessary to mention that the roots must not be broken during the operation, or a check will be the result. About the middle of April the best plant will have filled with roots the largest-sized pot recommended, and the leaves will be about 8 in. across. Progress, however, will have been made in proportion to the sunlight of the season and the correct maintenance of the proper temperature. Before the intended date of planting the preparation of the tank must be completed, and the water kept at a temperature equal to that from which the plant is to be removed. The Victoria is never planted deeply; the level of the water at the time of plantings should be about 6 in. lower than that to which it is to be raised. The crown of the plant when first put in should be about 2 in. below the surface. It is probable that the care always taken in mixing up the soil is not quite necessary, provided it is fresh and not heavy. Rich soil is preferable, because the leaves are desired, usually, at the greatest size obtainable, and no reasonable richness will prevent its flowering. The correct temperature is 85° and higher with sun heat from the time of sowing the seed to the time of saving it. Ventilation is important, but cold draughts at all times should be guarded against. The Victoria flourishes best when near the glass, and the characteristic upturning of the leaf margins appears to depend on being near to it. The tank in which this Water Lily is grown must be devoted almost exclusively to it.

The foregoing list does not include many plants with which the lover of aquatics is certain to become acquainted. *Azolla* and *Salvinia*, for instance, are both interesting; the former grows continuously without sexual reproduction, but the latter dies in autumn and sheds its spores, which now, the middle of March, are just beginning to germinate. When *Salvinia* begins to die a quantity should be put in a pot with its hole stopped, soil being placed on the bottom. The spores, however, appear to float and germinate at or near the surface. They will be found entangled among the confervoid growths, which are almost certain to appear.

R. J. L.

Stove Climbers.—I can recommend to Mr. J. M. Burton (p. 296) the *Marcgraaviæ* as climbers for walls in a stove temperature. *M. dubia* is the freest grower and the best of the two species I know of, though *M. paradoxa* is a good companion to it. These readily cling to damp walls, and the only difficulty is where to get them, as I do not see them named in any catalogue with which I am acquainted.—J. S. T.

SEASONABLE WORK.

Greenhouse.—Clear away all soft-wooded plants as they go out of flower to make room for Indian and Japanese Azaleas, which should be taken out of the forcing pit before the blossoms open, otherwise they will not last long when removed to an airy structure. Keep a good batch of bulbs in a cold pit for coming in late and at a time when the glut of spring flowers is beginning to wane. Bring on *Pelargonium* and tuberous rooted *Begonias* in small sets, as they are likely to be wanted, and push forward young seedlings of the latter for blooming in the autumn or early in the following spring. So useful and such general favourites are these plants that a large space in light airy pits should be devoted to their culture. Remove soft-wooded *Heaths* and *Epacris* as they go out of bloom; cut them back and place them where they can be syringed, as another year's success depends upon vigorous, well-ripened growths. If potting is necessary this should receive attention as soon as they are fairly on the move. Early forced Azaleas which have been kept together until a batch has accumulated may be examined, potted if necessary, or reduced, as plants in small pots well filled with roots set their buds, force and flower earlier and better than when liberally potted. The same rule applies to *Camellias*, which may be headed back this season, when they should be kept in a close moist heat, where they will not require much water at the root until the dormant buds break into growth. Plants in open borders will now take an abundance of water at the root. When they have flowered cut them into shape and keep them regularly syringed. Where *Rhododendrons*, Azaleas, and *Kalmias* are brought in annually for forcing a cool shady structure should be at command for hardening them off, as they will then do good service when planted out in beds of peat in the open air.

Stove.—By this time the majority of the newly-potted specimens in this department will have taken to the soil, and days having increased in length and brightness, more tepid water to the roots, liberal syringing on bright mornings, and again after the house is closed with strong sun-heat will be necessary to the production of a clean, vigorous growth, which is one of the best safeguards against the attacks of insects. Where all the plants, flowering and foliage, are growing in one house, it will be necessary to re-arrange them and to keep shade-loving subjects separated as much as possible from others which grow and do best in a light situation with exposure to a moderate amount of sunshine. Climbers, including *Allamandas*, *Dipladenias*, *Clerodendrons*, and *Stephanotis*, do well when trained on threads of twine tightly strained beneath the roof, and when set with flower buds they can be taken down and tied to the trellises. Proceed with the propagation of successional batches of cuttings of such indispensable plants as *Euphorbia jacquiniæflora*, *Thyracanthus rutilans*, *Sericographis*, *Scutellarias*, *Begonias*, and *Poinsettias*, as young growths can be obtained from clean healthy plants. Every cutting should be inserted in a small pot and plunged in a sharp bottom-heat. Seeds of *Ardisia crenulata*, *Rivina humilis*, and *Solanums*, valuable berry-bearing plants, sown now will come in useful in the autumn, and old plants of the latter may be cut back and started in a pit preparatory to planting out-of-doors about the end of May. Another batch of *Achimenes*, *Gloxinias*, and *Caladiums*, not forgetting *C. argyrites*, may be started for succession. In places where Orchid culture is not attempted we often find a few things adapting themselves to the ordinary treatment applied to Pines or Vines. Amongst these we have seen *Aerides odoratum*, which have not received peat or Sphagnum for a dozen years, producing thirty or forty racemes of flowers; but the most generally met-with plants in these places are *Calanthes*, and, being so easily managed, they should have a place in every plant or Pine stove. If not hitherto grown, roots of *C. Veitchi* and *C. vestita* should be obtained at once. Pot singly in 3-in. pots, using loam and sand, and withhold water until they begin to send up young growths from the base. Where there is a large demand for cut flowers *Bouvardias* should be extensively grown. Cut-back plants and rooted cuttings require warmth and moisture until the time arrives for placing them in light shallow pits for the summer, where they require close stopping and feeding. An intermediate pit, at a temperature ranging from 60° to 75° in winter suits them best, where quantity and quality of loam is the first object. Look well for the usual enemies, whose name is Legion. Sponge and smoke for thrips and aphids, use methylated spirits for bug, and keep down spider by means of copious syringing and good cultivation.

Eastnor Castle, Ledbury.

W. COLEMAN.

Seed Sowing (p. 279).—Those who grow rare plants from seed would do well to notice "B. S.'s" caution, not to throw away their seed pans too soon. I grow a good many such plants from seed, and I suppose I seldom get more than one-half of those sown in the year in which they are sown. I very seldom throw away the remainder, but put them in a cold frame, and am often gratified in seeing germination commence in the second or third year. I have just noted a pan of *Fritillaria tulipifolia* now coming up, though sown a year ago and placed in heat, and in the open ground I see *Hedysarum Mackenzii* coming up, though sown also last year. This rather surprises me, for as a general rule I find that *Papilionaceæ* germinate at once or not at all. On the other hand, *Ranunculaceæ*, as a rule, take a long time, for I have known *Pæonies* take three years, while *Fremontia* (of the *Malvaceæ*) is said to take four; but these rules only hold good with seeds that have been kept. If sown at once, I believe all seeds germinate much more rapidly. Keeping them seems to harden them,

and so to delay their germination, and if kept too long the hardening process destroys the power of germination altogether.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

Lapagerias from Seed (p. 296).—I have never found the least difficulty in raising seedlings of either the red or white *Lapageria*. I have at the present time hundreds of young plants all seedlings in various stages of growth. My practice is to sow the seed as soon as ripe in well drained pots or pans filled with sandy peat, just covering the seed with a little of the same soil, and after watering, placing the pans in the shady part of a rather warm greenhouse, where, if watered through a fine rose when necessary, the seeds germinate freely. "N. M. B.'s" seed must have been either old or have lost its vitality, or after being sown and just about to start it may have been allowed to become too dry, or possibly the reverse, as sown in heat may imply a close steamy atmosphere, which the *Lapageria* being nearly hardy does not require.—H. P.

THE ROSE GARDEN.

NOTES ON LAYERING TEAS.

SOME imagine that Tea Roses get worn out, or refuse to exist above a few seasons. It may be so; but not because they bloom over abundantly, as Mr. Fish seems to think. He compared one sort, *Maréchal Niel*, as being an offender to an over-cropped Grape Vine; the simile lacks aptitude, for the Vine may "suffer some" for a season or two by reason of its being overloaded with fruit, while the Roses in question carry blooms only, Roses, unless it be the wild ones, being seldom great fruit bearers. Nevertheless, the cause, whichever it may be, that produces such havoc amongst our Roses and makes invalids of more than it kills, can be removed. There is nothing new in layering as a means not only of raising young specimens, but also of giving a new impetus to a plant, ailing or not. I used to layer all kinds of Roses both tender and hardy, especially such as are what we call "miffy," and have an unlucky trick of being in apparent good health to-day, and in fourteen days beyond recovery. I never dug my Rose beds, but removed "the upper crust" annually, and replaced it with a rich compost; it was not possible to take a great deal away; there were too many roots at the surface. In four years it was found to be necessary to replant the Roses generally. The plants were protected in winter, the protecting material being removed piecemeal in March, but the tender Teas were kept in semi-nudity till April, and late too in that month if the weather was generally disagreeable to them. In spite of this extra indulgence they died off by dozens, and apparently of nothing in particular. They became cave inhabitants, and lived in other underground dwellings in the winter after we found they persisted in dying under their treatment out of doors. The results were not commensurate with the trouble given us. As a dernier resource I took to layering whenever or wherever I could lay hold of a shoot long enough and promising enough for the purpose, being resolved that if one leg was not enough for them to stand on there could be no harm done by adding to the number. It was not found advisable to wait till a plant began to be ailing; then it was too late. After this we lost very few Roses of any kind, and a very large collection was kept almost intact. Many Teas, and Hybrid Perpetuals, and Bourbons were on their own roots, for cuttings were struck in spring, summer, and autumn, and in winter we grafted large quantities, dwarfs and standards of all heights. The writers of the day have fallen into the fashion of calling standard Roses bad names; are they quite right or honest in so doing? I have an idea, and the majority of the public think so too, that a handsome standard of 3 ft. or more in diameter when loaded with blooms is a prettier sight than an irregular straggling bush which, unless one is a dwarf one's self, he must stoop to admire the blooms and smell them.

But to return. Layering was practised only with "own-rooted" ones, or very dwarf-worked plants on the Brier. Layers merely intended to give new feeders to a Rose were laid at a tolerably short angle at a depth of 8 in. in the earth, tongued and fastened securely with a stout wooden hook; whereas layers for increase were tongued every 4 in. and pegged to the ground flat, leaving a few inches of the top free, and they were layered from time to time, as they grew. *Maréchal Niel* was not more uncertain with me than other good sorts of the same class; still the layering had a good result in

putting more vitality into him. It was sometimes, as were other strong-growing Roses, grown on pyramidal trellises of wire about 8 ft. high, the pyramids having a base of 5 ft. in diameter, and, as a rule, five Roses were planted around this base, sometimes alone, sometimes mixed with Roses of other colours or Clematis. We did not stimulate much with manures, but abundance of water was given about the blooming time and in August and September. Moderately well ripened wood was preferred to over much growth, and we were well rewarded with an abundance of blooms onward till the frost nipped the plants. Summer pruning of useless wood and a partial pruning of the remaining shoots in late autumn were systematically carried out, and the closer cutting in was completed in the spring.

SYLVESTRIS.

OLD PLANTS OF MARECHAL NIEL.

IN continuation of the remarks of Mr. W. Nield (p. 258) I may state that there is at present a fine plant of *Maréchal Niel* in Mr. Charles Ramsay's nursery, Balls Bridge, near Dublin. This was no doubt one of the earliest purchased, having been obtained in 1867, and therefore now fourteen years of age. Although cankered in the stem, it bears annually a plentiful harvest of its deep golden flowers; it is slowly being eaten away with the malady peculiar to all its race, yet it nevertheless seems possessed of considerable vigour of constitution. The *Maréchal* some few years ago was planted out against a southern wall in the Botanic Gardens, Lansdowne Road, Balls Bridge, but, although I saw it in 1878 with some twelve or fourteen blossom-buds on it, they failed to come to maturity. Indeed, even in the most favoured localities in Ireland this Rose is a failure out-of-doors, at least, in Dublin, Meath, and inland counties. My experience is that it will not bear the knife, unless used most tenderly; that it is, after the first three or four years, a failure on its own roots, and that it does best grown as a standard on the Brier and trained close to the rafters. It requires to be well fed with a good mulch of manure early in spring, and steadily syringed every morning in dry weather. Although I have never tried the *De la Grifferaie* stock, I have budded it on the *Banksian* and *Fortune's Rose*, and it did well. This year I intend trying it on *Noisettes Réve d'Or* and *Earl of Eldon* (both strong growers, making plenty of good sound wood and early growth). Its great enemy seems to be canker, which eventually kills the majority of the plants of this fine Rose.

G. C. GARNETT.

Dorothybrook.

Stocks for Marechal Niel.—Much has been said about stocks for this Rose, but from what I have experienced of it and seen elsewhere, I am of opinion that, however free the stock may be, it will be found to possess the provoking habit of going off at the junction between stock and scion. Some years ago I thought I had made a hit after working it on the climbing *Devoniensis*, which, with me, is one of the freest and fastest growing stocks that can be had, and yet, after a time, although the *Maréchal* grew most vigorously and filled the greater part of a large house, it soon began to form a huge lump where budded, which lump kept on enlarging till it became the size of one's fist, and then cankered, which led to the decline and ultimate death of the Rose. The same thing happened to the one on *Gloire de Dijon*, and we have now replaced them with plants on their own roots, but how long these may live and flourish remains to be seen. The grandest plant of the *Maréchal* I ever saw is on the front of Mr. B. Cant's residence at Colchester, the shoots on which are very large, and if he would tell us something about it, the stock it is growing on, its age, &c., the information will be valuable, as I should think from its huge stem it must be one of the oldest in the country. Has anyone tried *Aimée Vibert* as a stock for the *Maréchal*?—S. D.

Rollisson's Unique Pelargonium.—The great value of this *Pelargonium* is as a basket plant, for which it is particularly adapted, its long trailing shoots depending gracefully over the sides where they flower in the greatest profusion. My first acquaintance with it in that shape was at the Crystal Palace of 1851, where it was quite a feature, it being the principal occupant of the baskets that were suspended along each side of the transept and other parts of the building. The way in which it produces the best effect is mixed with the white Ivy-leaved *Pelargonium*, as the two blend and associate well together, the white blooms of the one showing up against the bright red of the other in the most effective manner. To flower *Rollisson's Unique* freely it requires a light airy house, with full exposure to the sun, as under such conditions what growth it makes is short-jointed and firm, and the more so if old plants are used, which are always the best, as there is less tendency in them to make growth; besides being good for baskets, *Rollisson's*

Unique is fine for vases out-doors, as also for bedding in hot dry soils, or for planting amongst rockwork in elevated positions where from its habit it looks quite at home. Pot plants for winter or early spring blooming should be plunged out of doors during the summer and kept stopped back rather short, which pinching and hardening of the shoots causes them to quite bristle with flower buds.—S. D.

THE GARDEN FLORA.

PLATE CCLXXVII.—EULOPHIA GUINEENSIS.

*EULOPHIA*s are not popular plants, but why they should not be so is a matter of wonder to the few who can grow them well. The annexed representation of *Eulophia guineensis* is the best that has come under my notice. It very rarely produces more than eight flowers on a raceme, but, grown as Mr. Spyers grows it, it yields to cultivation, and beautiful it is. Its *Miltonia*-like flowers, placed alternately on a slender peduncle, show well among and above the *Hæmanthus*-like foliage, and under liberal culture give a return pleasing alike to owner and grower. It is an excellent subject for those who desire to have cut flowers, either individually or in the form of a raceme. Although the species is not abundant in this country, yet it can be had at a comparatively moderate price, and no one who loves good Orchids should be without it. With the aid of Mr. Spyers' excellent cultural hints given below, any one may grow it. The only extra care required is watching while the plant is at comparative rest neither to flood it with water nor allow it to get too dry at the roots, nor to be in too cold an atmosphere in winter.

JAMES ANDERSON.

Meadow Bank.

Culture and Position.—Although this lovely Orchid has been in the hands of cultivators for many years, it is only quite recently that Orchid growers have considered it a desirable plant to add to select collections. Here it has always been a favourite, and plants of it have from time to time produced magnificent spikes of bloom, lasting from six to eight weeks in perfection. Its flowering season is August and September—two very dull months, so far as Orchids are concerned. *E. guineensis* may be potted in either a mixture of peat and Sphagnum, or fibry loam and broken bits of crocks and charcoal. The pot should be half-full of drainage, covered by a layer of Moss or fibre. There is no necessity to elevate the pseudo-bulbs above the rim of the pot. During the growing season (which with us is from February to August) we keep this plant in a rather shady position at the cool end of the East Indian house, give frequent liberal supplies of water, and keep the broad, tender foliage clean by sponging it. The spike comes away long before growth is completed, but by the time half-a-dozen or so of the flowers open the plant will enjoy the more airy and cooler atmosphere of an intermediate house. This *Eulophia* is deciduous, and does not require a large amount of water from the time when its foliage changes colour till the growing season commences again. Sufficient must, however, be given to keep the large roots from perishing, as these roots are to this Orchid what the large persistent ones at the base of their bulbs are to Lilies.

J. C. SPYERS.

Burford Lodge, Dorking.

[The plant from which our plate was prepared flowered, as represented, in Sir Trevor Lawrence's garden at Dorking last autumn.]

NOTES ON ORCHIDS IN FLOWER.

THE principal attraction in Messrs. Lows' nursery at Clapton just now is the *Phalænopsis* house, in which some hundreds of plants are bearing long and graceful spikes of bloom. The chief kinds are *P. amabilis*, *P. grandiflora*, *P. Schilleriana*, and *P. intermedia*. Of the two latter there are nearly if not quite all the varieties represented, the most beautiful being the extremely rare *P. intermedia* *Portei*, and *Brymeriana*. The colour of the former is exquisite, the oval petals and sepals being pure white and semi-transparent, while the tri-lobed lip is a bright rosy red flushed with orange, making a charming contrast to the delicate petals. In large plants the spikes are long and pendulous, and bear a profusion of flowers in a manner similar to *P. Schilleriana*. *P. Brymeriana* is likewise a variety of *P. intermedia*, and like it too is very beautiful. The leaves are as it were intermediate between *P. amabilis* and *P. Schilleriana*. The sepals are flushed with a delicate purple, and the lip is a deep crimson—



violet in the central part and white, copiously spotted with crimson on the two lateral portions. There are also several forms of *P. Schilleriana*, as might be expected among such a vast assemblage of plants. The chief of these in flower are *leucorrhoda*, *casta*, and *Veitchiana*, all of which are very beautiful, and it is only a matter of regret that their great rarity precludes them from becoming generally cultivated. Among the more remarkable of the other Orchids in flower were the rare

Dendrobium Lowi, an attractive species from Borneo, in the way of *D. formosum*. The flowers of this are produced in dense racemes, and are about $1\frac{1}{2}$ in. across. The colour is a clear yellow, with several red lines on the lip, which is beautifully fringed. The stems grow about 1 ft. high, and are covered with a dense, short, black down, similar to all the species belonging to the nigro-hirsute section of the genus. *D. luteolum* was finer than we have ever seen it, a large group of it being in full flower placed in a sloping manner, an arrangement which set off to advantage the delicate primrose colour of the flowers, which are abundantly produced amidst the evergreen foliage.

Lady's Slippers (*Cypripedium*) were represented in flower by the handsome *C. Lawrenceanum*, handsomer even than *C. Dayanum*, which it somewhat resembles. It was one of the numerous discoveries of Mr. Burbidge when travelling for Messrs. Veitch in Borneo. Of *C. Lowi*, a fine species hitherto so rare, may here be seen by the hundred; many of them are in flower, and among them some fine forms. *C. Stonei*, too, perhaps one of the finest of all the Lady's Slippers, is represented by a healthy stock of imported plants, which promise to produce a fine show of bloom.

Other notable Orchids were *Warrea discolor*, *Oncidium ornithophylon*, *sarcodes*, and *serratum*, *Helcia sanguinea*, *Maxillaria lepidota*, *Cymbidium Lowi*, numerous *Odontoglossums*, and *Oncidiums*.

W. G.

PSEUDO-BULBS SHRIVELLING UP.

I HAVE been much indebted to various articles in THE GARDEN for such little success as I have had in my short experience of Orchid growing, and it would add to my obligation if you, or some of your correspondents, could kindly suggest a probable reason for one evil which has troubled me of late. This is the decay, or rather the turning yellow and shrivelling-up, of some of the old pseudo-bulbs on a number of my plants. Those on blocks suffer most, and the plants in most cases are making new shoots, and apparently growing well and at the same time that the back bulbs towards the bottom of the block are shrivelling up and dying successively. One of the plants that has suffered most in this way is *Odontoglossum Rossi majus*, well established on a flat block; it grows well, and has flowered, but gets smaller rather than larger from the reason named. The same thing occurs with *Lælia albida*, which forms roots rapidly, and also small new bulbs, but the original imported bulbs turn yellow and decay. This also is on a block. A Mexican Orchid (name unknown) with long creeping stems, to which the bulbs are attached, suffers in the same way. It is only the old bulbs that fail; those with leaves on them remain green. This last Orchid is on a block, and has been imported about eight months; it is making, perhaps, five and twenty new leaves—one from the base of nearly every bulb. All the above plants have been watered (by dipping in tepid soft water) twice or three times a week since last summer. I have thought that perhaps the lower part of the blocks was thus kept too wet; but I do not see how to prevent the lower end from being the wettest, except by laying the blocks flat. On the other hand, a plant of *Dendrobium densiflorum* in a pot which, after finishing its growth, has only had a little water once in five or six weeks, has lost a number of its old bulbs in a similar manner by their turning yellow and shrivelling up. The same thing has happened with some of the old bulbs of a *Gongora* in a basket and with several other plants. The plants are in a small house, facing the north-west, and have no direct sunshine in winter. The night temperature in January was from 45° to 50° , and is now about 55° . Some fresh air is always left on, but perhaps not enough.—C. C. [The decay alluded to is partly due to natural causes, partly to the plants being in an impoverished state, arising from block treatment, and partly, it may be, from want of light and air. Block treatment, as is well known to Orchid growers, is often carried to too great an extent. In my opinion, block treatment neither answers for *Odontoglossum Rossi majus* nor *Lælia albida*, and certainly not for Mexican *Maxillaria*—they like a better feeding medium. Some may differ as to how they would grow *Lælia albida* best, but few as to the other two; and if your correspondent would transfer his plants to pots, and keep them near the glass, much of his troubles as to bulbs giving way would be overcome. Of course all plants in time lose their back bulbs; but with room, and a proper root and atmospheric medium, it is astonishing how

long they keep alive. As to *Dendrobium densiflorum*, it seems somewhat inexplicable, as it is very tenacious of life; possibly it may have got a chill this very cold winter. Want of light in winter is a great drawback to the British grower of Orchids. Anything that can be done to secure good light is of the highest importance for keeping up the constitution of Orchids, not only as regards flower, but also vigour, and ensuring consolidation of growth. Without proper attention to this, the grower cannot count upon maintaining uniform successful cultivation.—JAMES ANDERSON, *Meadow Bank, Glasgow.*]

ODONTOGLOSSUM MEMBRANACEUM.

SOME regard this Mexican *Odontoglossum* merely as a variety of *O. Cervantesi*, but be this as it may it is distinct enough for garden purposes, and the two kinds may be readily distinguished when in flower. Both are pretty, not by any means new, though not so often grown as they might be, and certainly not so much as their merits would seem to entitle them to be, for their delicate flowers and agreeable odour are surpassed by few among the large number belonging to the genus in cultivation. The flowers of *O. membranaceum* are white, with conspicuous concentric lines of deep red in the centre. It differs chiefly from *O. Cervantesi* in the flowers being larger and whiter, in the petals being blunter, in the lip being more heart-shaped, and in the two front teeth-like projections being shorter. Both kinds belong to the section that succeeds well in a cool temperature, either grown in pots or on suspended blocks. An ample supply of water should be given them during the sum-



Odontoglossum membranaceum.

mer months, but in winter and until genial weather sets in they should be kept almost dry. The temperature should range from 45° to 55° , rising, of course, much higher under the influence of sun heat. Q.

Epidendrum bicornutum.—At Kew this rare species is grown better than elsewhere about London, and at the present time there are some fine examples of it in the collection which will soon be in flower. One plant, some 2 ft. across, has five or six spikes of flower-buds which when expanded will be a beautiful sight. This is one of the most lovely Orchids grown, rivalling even the *Phalenopsis*, and surpassing it in the length of time during which the flowers remain in beauty—a property, probably due to their thick wax-like texture.—G.

Tydæa formosa.—This is one of the most useful and early of *Tydæas*, and one that continues blooming over a very long period. Few plants yield more cut bloom than this *Tydæa*, and, the foot-stalks being long, the blossoms are easily arranged. Although an old friend, and one not often seen, I would recommend all who have a demand for cut flowers to get a plant of it.—J. C., *Farnborough.*

Frauds.—The excellent report of the Kansas State Horticultural Society, just received, says that at its ninth semi-annual meeting frauds and humbugs received the strongest condemnation. The proprietors of the Hill Home Nurseries, of Tadmor, Ohio, and of the Rose Hill Nurseries, of Iowa City, Iowa, were specially so red for their efforts to swindle the people of Kansas with such frauds as the Conover's Seedling Grape, and statements "meant to deceive" about Hybrid Russian Apple trees and many other worthless articles. A fellow named Fullhart was also "handled without gloves" for selling the Lombardy and Broad-leaved Peaches as valuable fruits, and also such frauds as the Sweet Rhubarb, Tree Strawberries, Grape-Vine Raspberry, and monster Pears, "originating in the swamps of France."—*Rural New Yorker.*

THE FLOWER GARDEN.

THE WOODLAND GARDEN.

At no time of the year does the woodland or wild garden yield greater interest and pleasure than at present, when signs of returning life and beauty every day arrest attention. For some weeks past Snowdrops and Aconites have made our woodland garden bright and enjoyable; it is situated in a dell almost overhung by a precipitous bank on the north, or flower-garden side, that effectually screens it from cold cutting winds. It is reached by winding steps cut in the bank, which is clothed with Ivy, from which at present peep myriads of Snowdrops and other hardy bulbs and Primroses of all colours, for the cultivated sorts have been freely planted amongst the wildings, and seedlings of all shades is the result. Cowslips, Oxlips, and Polyantheses, too, do equally well under similar conditions, and being a little later in flowering help to maintain a long succession of floral beauty. Crocuses of various colours are now very effective, and although mice are troublesome to freshly planted bulbs in the garden or elsewhere, I find that clumps of several years' growth are rarely molested. We find sprinkling soot around bulbs a good preventive, and it also acts as a manure. Snowdrops increase in beauty in proportion to the number of years during which they remain undisturbed; for although freshly-planted patches are comparatively ineffective, they are simply lovely when seen in established masses; we have masses of them covering several rods of ground that have for some weeks been a complete sheet of the purest white. The single Snowdrop is quite equal to the double ones in effect when seen in a mass, and, being rather taller, is well adapted for throwing its bloom well up above a carpet of permanent foliage such as Ivy or Grass.

As the woodland garden must of necessity be located under a canopy of forest trees, it follows that as the season advances, and deciduous trees get into full foliage, the shade becomes more or less dense; advantage should therefore be taken of open glades or sunny spots to grow such summer-flowering plants as succeed in such positions, as, for instance, tree and herbaceous Pæonies, Irises of different sorts, hardy Fuchsias, and such flowering shrubs as *Leycesteria formosa*, *Deutzias*, *Camellias*, *Azaleas*, *Kalmias*, &c.; and in the shaded recesses hardy Ferns, both evergreen and deciduous, should play an important part, as they might be arranged in various ways to suit the character of the surroundings. In hilly or rocky ground they might be elevated on rock or root-work, and by mixing Vincas, Cotonasters, coloured Irises, and *Euonymus* together, a beautiful effect the whole year round might be produced; and as the trimness of the garden proper would not be in keeping with the woodland, the old foliage of the deciduous varieties might be left intact, as a protection to the crowns during winter, removing them only when new growth becomes active in spring.

We have lately added groups of Pampas and other Grasses to our woodland garden, such as the *Arundo donax* and *conspicua*, and by planting them in masses, and edging them with Ribbon Grass and some of our native Rush-like Grasses or Sedges, there is no limit to the variety one can introduce into such positions, as the shelter afforded by the overhanging trees renders it possible to grow plants in the woodland garden that succumb to our winters when fully exposed.

J. GROOM.

SPRING NOTES.

THE last fortnight has made a wonderful change in our gardens, but flowers are not nearly so forward here in Lancashire as they are in the south. I see large bunches of Lent Lilies in the florists' shops, but here we have very few in bloom, and these in the most sunny and sheltered corners. *Narcissus minor* flowered first, three days ago, and this, with the single and double Daffodil, are all the Lilies we have yet in flower. The others are all in bud, and promise to give us a rare treat this season. *Chionodoxa Luciliae* is now in full bloom, and a most lovely flower it is. In colour it resembles most the common blue *Nemophila*; the flowers measure exactly 1 in. across, and the six petals are white in the centre, shading gradually to a lovely azure blue at the lips. It is very different in appearance from *Scilla sibirica* and *bifolia*, which are growing near it, being every way more brilliant. This is without doubt the most valuable addition we have had of recent years to our spring flowers, and we may all join in thanking Mr. George Maw for it, and for his kindness in distributing it so generously. The Hepaticas are now lovely. *H. angulosa* is one of our best spring flowers, and if placed in a sheltered corner it bears blooms very profusely. Hepaticas

do best on the rockery, where they are never disturbed; we have them in corners of the rough rocky steps, and there they are perfectly seen, and you do not miss the foliage. The double pink Hepatica is a perfect gem, and the single blue is also very beautiful; one of ours has at this moment forty blooms, and is quite a little picture. *Doronicum caucasicum* is just coming into bloom, and is one of the most useful and beautiful of our simple spring flowers. It is evergreen and always pretty. In the early spring its heart-shaped leaves are of so bright a green as to be almost equal to flowers, and when the dense tufts of bright leaves are thickly dotted over with the brightest golden-yellow star flowers, each as large as a crown-piece, it forms one of the most sparkling and pretty of our garden ornaments. We have it all round the borders, amongst the spring bedding, on the herbaceous borders, and in crevices between stones on the rockeries; in fact, one cannot have too much of it. The other *Doronicums* are not so good, being of much taller and looser growth, but they are all worth a place in a large garden. *Orob. vernus* came into bloom a week ago, and *Soldanella alpina* has several flowers out. This is quite hardy and very floriferous. A lady passing through my garden yesterday was quite delighted with this flower, as she had lately gathered it on the Righi, in Switzerland. The lovely Saxifraga *Burseriana* and *oppositifolia* are still in their glory. *Erica carnea* is in full bloom, and these with the thousands of Crocuses and Snowdrops make us very gay.

Didsbury.

BROCKHURST.

SPRING FLOWERS.

THE dismal dreariness of the past winter has during the last fortnight been succeeded by a bright burst of early spring, to which for some years past we have been utter strangers, and consequently the *primi fieri* have been unusually fresh and fine. I have had more than twenty distinct species of Crocus in bloom not including varieties, the most noteworthy being *C. Balanse*, *altavicus*, *atlanticus*, *corsicus*, *banaticus*, *garganicus*, *Cambessedesii* (which has been continuously in bloom since Christmas), *Crewel*, *biflorus* var. *estriatus*, *Imperati* and its varieties *ravellensis* and *albus*, *nivalis* var. *versicolor*, *Olivieri*, *suaveolens*, *vernus* var. *leucorhynchus*, *siculus*, *dalmaticus*, *etruscus*, *reticulatus*, *lacteus*, *Weldoni*, and *chrysanthus* in about half a doz. vars. *Muscari lingulatum*, from the Cilician Taurus is the queen of Starch Hyacinths. It has spikes of bloom of the finest sky-blue. *Merendera sobolifera* is a sheet of blossom. *Puschkinia compacta* and *Chionodoxa Luciliae* have stood the winter bravely, and are in bloom in the open border before their brethren in the glazed pit. *Scilla bifolia* and its vars. *taurica*, *nivalis*, *rosea*, and *alba* were never finer, and *Anemone blanda*, with which I could never succeed till I got home-grown seedlings from Mr. Nelson, of Alkborough, is a mass of bloom.

Snowdrops have been unusually good. I have had all Mr. Melville's varieties in bloom. The Dunrobin seedling, *G. Melvillei*, and the little late-flowering *serotinus* are the gems of the lot. The merits of *G. Elwesi*, *plicatus*, and *Imperati* are too well known to need repetition, but when they get more common every one will delight to grow the quaint *G. virescens*, for which I am indebted to Mr. Max Leichtlin; the curious double-spined, green-tipped *G. Shaylocki*, and the little delicate *G. lutescens*, or *reflexus*, which ever it is, a miniature *nivalis*, in which all the green portions are yellow. *Leucojum carpaticum* has been unusually fine. *L. vernum*, for some reason or other, does not grow satisfactorily here. *Helleborus orientalis* is a mass of bloom, and so is *Iris* (*Xiphion*) *reticulata*. Mr. Stevens' success at Byfleet induces me to hope that some day I may succeed with *I. Kolpakowskyana*. Hitherto I have utterly failed, but after repeated failures I have at last established *I. Histrio*, so I do not despair. *Narcissus* (*Ajax*) *minimus* and *cyclamineus* of Haworth, both of which I found when botanising with Mr. Maw on the Spanish mountains at Pancorva, and which Mr. Baker has kindly named for me, are in bloom. So is Dr. Regel's pretty little yellow Tulip (*Tulipa iliensis*). *Corydalis Ledebouri* and *Kolpakowskyana* both please me, and are very distinct. *Ornithogalum poeticum*, *Ancheri*, *fimbriatum*, and *glaucophyllum* are in flower, and various other species coming on. *Fritillaria montana*, *pontica*, *latifolia*, *racemosa*, *lutea*, *pyrenaica* in var., *delphinensis*, *ruthenica*, *Ehrharti*, *oronensis*, *tristis*, *græca*, *involuta*, *Thunbergi*, *pallidiflora*, *dasyphylla*, *lusitanica*, *Burnati*, *tombanensis*, &c., are pushing up strong, and so are various *Eremuri*. The *Primulas* of the *denticulata* race have been hard hit and will not do much good, but *P. rosea* looks healthy and strong. *Gagea lutea*, which I have at last firmly established, will be in bloom in a few days, and the little Spanish *G. polymorpha* is in bud. *Leucojum Hernandezi*, which I brought from Minorca, and which M. Rodriguez considers to be distinct from *L. pulchellum*, is coming up strong. Most of the Spanish *Corbularias* are showing bloom.

H. HARPUR CREWE.

Drayton-Beauchamp Rectory, Tring.

SPRING FLOWERS EVERYWHERE.

THE days of ignorant neglect of our lovely spring garden flora are past. The meaning and the beauty of a garden in the early year are again clear to all who have eyes; and a happy thing it is, the recent revival in hardy and spring flowers, inasmuch as it gives us a whole season of beauty added to our gardens; that is to say, a place now full of hardy flowers, such as many that we know of, will have at least three months of clear gain in flowers over those which have no hardy spring flowers, and which, as in many places ten years ago, also depend entirely on bedding out. That, as everybody knows, is usually carried out at the end of May, and in many districts as late as the first week in June. Being tender plants, the cold rains and storms after that date frequently injured them, and their period of beauty is often much later than that. As a matter of fact, then, the bedding system simply reduced the beauty of the English garden by one half. Mr. G. F. Wilson came in to see us the other day with a handful of spring Snowflakes and other bright spring flowers—that was the first week in March. The flower he brought in profusion (*Leucojum vernum*) was not in cultivation at all twelve years ago. It might be obtained here and there in a botanic garden or curious collection, and it was wild in a few spots in England, but as a garden plant it was not obtainable or visible. It well typifies the change that has taken place in our gardens. We have got back our old flowers again, and many more with them.

Supplies—As yet the difficulty of getting good plants is very great, and therefore those bright Hepaticas and other spring flowers are often seen as poor dots where they ought to be bright sheets or healthy tufts a yard across. The question of obtaining supplies of our hardy spring flowers by those who do not carefully increase them for themselves, is a very difficult one; such is the run on the nurseries that grow these things that people cannot, even at a high price, get a healthy stout plant. One has to give much more for a little border flower than for a well-established young tree, and then perhaps will not get a good plant. But this is a state of things that may be expected to change for the better after another year or two. What we should counsel those who care for their spring gardens is this: To begin and always to work with a series of nursery beds, while not neglecting their flower beds and borders; but of the two, we should begin with forming and planting nursery beds. If plants, when obtained, were divided into little beds and put in lines 1 ft. apart, in these nursery beds they would soon increase, so that one could get such a stock as is required. When a plant is at all rare, plant it first in the nursery beds.

Notwithstanding the trouble we speak of as regards procuring the finer spring flowers, there are many districts where an observing person may make a fair collection without much inconvenience. In some parts of the country the cottage gardens were not all cleared of their hardy adornments. We never pass by a cottage garden without looking over the railing to see what it contains, and not unfrequently are well rewarded for it. That is one source of supply. The larger class of gardens are now beginning to show a little more attention to flowers of our own clime, so to say, and in them, too, good things may be found and exchanges effected. Then there are the seed catalogues of certain houses which ought to be examined every spring, and good sorts raised from seed, also in nursery beds—the seed sown in fine soil in the open air. Some things are raised as easily as Mustard and Cress—for example, the different Bellflowers. Some hardy flowers are a little difficult, and have to be waited for, but this is partly owing to keeping the seed too long after it is ripe. Hitherto the principle has been to select when the seed catalogues come out in spring and sow afterwards—a good plan, no doubt, if we have not our own fresh seeds to sow when they ripen. There has always been some little difficulty about raising Hepaticas and Christmas Roses from seed, but Mr. Frank Miles, who is very successful with these, says he manages it easily by sowing as soon as the seed is ripe in the open air, and covering the border in which it is sown with slates or bricks. They remain on till the seed begins to germinate. They save the seeds from drought, and from the attacks of birds and vermin, and this explains the success of the method. In presence of the difficulty of obtaining good stocks of hardy flowers, all who can should raise them from seed. Mr. Miles's plan might with advantage be applied to other things which do not come easily from seed.

Selection.—Perhaps, before the question of getting a stock should come that of selection. In old times our gardens were very often spoiled by reason of the presence of poor, weedy plants; now our garden flora and the flora of Europe and America and Asia abound in beautiful, hardy, vigorous, and in all ways good plants. There is, then, not the slightest reason for the cultivation of a poor or weedy subject, or one in any way inferior; so take the greatest care to make a good selection to begin with, and never admit plants you do not know to be desirable. Avoid, for the garden proper, all coarse, weedy subjects which overrun and impoverish the borders, and give no fitting return for the space and good soil they occupy. Such

vigorous plants, if they have any good qualities at all, should be put out in copses and half-wild places to run riot. Among such plants may be mentioned, for example, the coarse Borage-worts and Comfrees, which are beautiful in rough, shady places, lanes, &c. Any plant that can be grown in such places need not be grown in the garden proper; for instance, if we have a cloud of Daffodils in the orchard we may put other kinds there instead of giving them space in the garden. As regards selection, a good plan is to see the London and other nurseries where collections of hardy things are grown in spring and early summer.

Various Positions.—As regards position and the mode of cultivating spring flowers, something ought to be said. The first change in the direction of spring gardening was a kind of bedding-out, and a very attractive thing too—Forget-me-nots, Pansies, Daisies, Catchflies, Violets, Hyacinths in beds and in ribbons; but this is only one way of cultivating spring flowers, and not the best, in the country seats of England, to which we need not say our remarks mostly refer. The easiest and the most artistic thing to do is to scatter about the flowers wherever they will grow, in mixed beds, hedgerows, or plantations. Many of our country seats, like the London parks, are as bare and ugly in their dug borders as a cemetery. It was quite an exception some years ago to see a beautiful flower in the open air before the time of bedding-out arrived. Now, since we have quite doubled the length of our garden season, so to say, the first mode of growing and enjoying our spring flowers is a most important question. Here and there one may see, as at Ribston Hall, in Yorkshire, signs of taste and knowledge in growing spring flowers, and suggestions of what is possible in the future. Every place where there is a pleasure ground, or any open space of Grass with trees on it, may be made delightful with such things as the winter Aconite, and Snowdrop, and spring Snowflakes, and the blue Apennine Anemone and various other flowers dotted in the Grass. It is not desirable in the open and much shaven parts, but about trees and under the branches of summer-leaving trees. Some little plants that flower and ripen their leaves early find a happy home under Beech or Oak or other deciduous trees; they complete their season's work before the leaves come on the trees, and in spring are seen happy under their branches. Then, again, in any place where wild flowers grow well, numerous additions from other countries may be made to them. For instance, if we have a grove where the wood Anemone grows naturally (a common occurrence enough), nothing is easier than introducing the blue Apennine Anemone along with it; and, if the soil is chalky, the yellow Anemone (*A. ranunculoides*) would be a delightful addition to them. Or does the Bluebell or wood Hyacinth grow with us? Then, certainly in the same place, or near it, will also grow its relative the bell-flowered Scilla and *S. bifolia*, both not native plants, but perfectly hardy in our country. Various kinds of Daffodils or Narcissi will grow anywhere the common Daffodil will; as, for example, the different forms of Poet's or Pheasant's-eye Narcissus. The beautiful wood Forget-me-not may be seen in any wood, copse, or shrubbery, and will give an ample return. Thus it will be seen that, apart from the garden proper, much may be done in adding the glory of spring flowers to any place where there are trees and Grass. The corners in an old orchard are among the places delightful for experiments of this kind.

The Garden Proper.—Coming into the garden proper—that is to say, the actually cultivated part of the garden—we may next look at the many positions in which spring flowers may be grown before we come to the geometrical bedding-out, which is the most troublesome and the least desirable of all. The fashion of leaving beds of Roses, choice shrubs, &c., bare of all but what might be called their proper contents, must now be given up. In many places we know the bare and rich Rose beds alone would furnish a happy home for numerous beautiful spring flowers—Pansies, Violets, choice Daffodils, Scillas—in fact, for all dwarf plants established in colonies between the Roses. Double Primroses are particularly happy in such positions, and flower profusely. The slight shade such plants receive in summer from the other tenants of the bed assists them; they do better than in bare borders. Where the Rhododendron beds are thin, as they often are (and we think that the bushes never ought to be jammed together), a garden of another delightful kind is at our disposal. The peat-loving plants of the world (and there are many fair ones among them) will be quite at home here, much more so than any bare borders. The White Wood Lily of the American woods, the Virginian Lungwort, the Canadian Bloodroot, and the various Dog's-tooth Violets are plants that enjoy this position, as indeed most plants would; only it is best, where people discriminate, to reserve it for those that enjoy it most. Next we come to borders and beds of favourite flowers, of spring flowers, such as the Polyanthus, the Primroses in their various-coloured forms, Cowslips, Auriculas, which in the self-coloured and border kinds are delightful. Special beds of favourite spring flowers are also very desirable. One can cut and

come again for their flowers; and, they are so convenient for division and exchange. Then, by some favourite walk or walks in quiet places, a rich border for those glorious Polyanthus and coloured Primroses and any other favourite free spring flowers is well worth having. Thus it will be seen that before we come to the bedding of spring flowers there is a variety of ways of enjoying them, more artistic, more satisfactory, more easily managed than the bedding out pure and simple. That may follow the fashion of the hour, and be arranged according to taste, with a considerable variety of material—Forget-me-nots, Daisies (both variegated and green), Silene, Pansy, Violet, Hyacinth, Anemone, Tulip, and so on. If we have a group of beds, and, say, a parterre under a window or any other conspicuous position, a bright and pretty effect may be formed in this way; but we hope our remarks have made it clear that, without any such thing as either parterre or formal beds under the windows, fair gardens of spring flowers may be made in every place. If they are so made, the eternal problem of design for the few formal beds of the parterre will not seem so terrible or so necessary a business as is the case at present.

New Forms of Spring Flowers.—It is not part of our plan in this list to enumerate all the spring flowers suitable for the embellishment of our gardens, but we may say there are hundreds of families. We may mention, however, that of late have been collected from various countries, or raised from seed, a number of beautiful forms of well-known and much-loved flowers. For example, it is believed that there now exist about twenty different forms of the Lily of the Valley, differing in size of bloom, in size of plant, and even in time of flowering. So again the Hepaticas, which we know in two or three bright forms, have broken into a much greater number. It needs only a small effort of the imagination to know what we can do with such treasures when they are sufficiently increased to be valuable for general garden decoration; and, apart from these new forms of old friends, there are many wholly new species being introduced year by year.—*Field*.

LILY BULBS.

I PLANTED last spring bulbs of *L. auratum* in some gravelly soil about 20 in. deep, lying upon a hard sand rock. Besides *auratum* I planted two bulbs of *longiflorum*. Two of the *auratum* soon came up and one *longiflorum*, and in due time there were four or five flowers on each. But the stems kept up and the leaves seemed to keep growing till just about Christmas, when I was afraid that the soil would be too wet and close for them, and as I was away from home I asked one of my sons to take them up carefully, put them in a tub in a lighter soil, and take them into a back part of the house, where no frost or wet could hurt them. They were about 7 in. or 8 in. deep. When he took them up he found that a lot of bulbs had formed, some four of them clustering round the old bulb, and eight or ten more growing up the stem to within about 2 in. of the surface of the soil in the case of one of the plants of *auratum*, and about eight or nine on the other, the same being on the *longiflorum*. They were about the size of a large Walnut. The young bulbs in fact grew round the stem like Onions roped or tied on sticks for drying. Another *auratum* I planted in a 6-in. pot at the same time when I planted the others in the garden; it was the first to come up and grew the tallest, but did not show any flower-buds till the others had nearly done, but the buds grew very slowly, and as autumn came on with its heavy rains I put it in a little greenhouse that I made myself, where there were but a few hours' sun a day. There I nursed it along as well as I could; but, as there is no heat in my house and it was now the beginning of December, I could see it would not flower there. I therefore took it into my sitting-room, and so managed that the head of the plant should show itself in the window about 6 in. or 8 in. above the sill, so as to get as much sun as possible, when, in about nine or ten days, its buds opened, and I had the gratification of seeing the most beautiful *auratum* that I ever saw. About a month ago the stem and leaves were still growing when I repotted it into an 8-in. pot, and I could then see that the 6-in. pot was as full of large white roots as it could hold.

ELI SPREADBOROUGH.

West Street, Farnham, Surrey.

Pipings of Tree Carnations.—I have seen it urged in THE GARDEN and its contemporaries that Carnation pipings should not be kept in the air for long before they are put in the cutting pans. A recent experience of mine has rather proved the contrary in the following manner. Mr. James Taplin, of Maywood, New Jersey, U.S.A., very kindly sent me some cuttings of seven different sorts of the best American Tree Carnations. They were about two weeks coming; I kept them ten days before I struck them, and then put them into a cold frame; they were without exception rooted in ten days,

and this I take to be extraordinary, for I have never been really successful with pipings put in directly of English sorts; and these pipings were apparently painfully dried and wiry, so much so that my gardener and that of a friend both pronounced it injudicious to waste room in such a hopeless task. I need hardly say that they are both surprised at the result. I cut them close beneath a joint, stripped off the lower leaves, made a little upward slit, cut off the tips of the grass, and put them in about $\frac{3}{4}$ in. apart in rows, spreading a layer of sand $\frac{1}{2}$ in. thick over the top of the pan, which was filled with a light fibry compost of loam, leaf-mould, sand, and a little peat; this last, I find, arrests decay to a great extent. The varieties are, I think, not very well known in England, being Crimson King, Peerless, Peter Henderson, Pride of Secaucus, Astoria, and Springfield. They were described at length by Mr. Taplin in a back number of THE GARDEN.—GIROFLE.

Galanthus Redoutei.—This is most distinct and interesting. The foliage is broad and Grass-green in colour. It comes up more like a Scilla than a Galanthus, and the small, delicate, pure white flower looks very pretty indeed set off by the somewhat peculiar leaves. I had two roots in the autumn of 1868 and two more the following season, but they have not bloomed till this spring, and now I have but one flower. My experience confirms that of the Rev. H. Harpur Crewe, that *G. Redoutei* requires to be left undisturbed for several years, so as to get thoroughly established, before it will bloom.—JAY AYE.

Wild Flowers on Lago Maggiore.—The following description of the wild flowers near Pallanza, on Lago Maggiore, may perhaps interest some of your readers, especially as most of the flowers mentioned are of those which many of us tend carefully in our gardens. I enclose specimens of the large green Hellebore, the Crocus, and the Snowflake, all of which are in good condition.—M. M. FOSTER, *Pallanza*. "Yesterday we drove to Cassonio, a village about five miles from here, a lovely wild place among Chestnuts and Walnuts. There, in a dell, we found the ground covered with little white Crocuses, pure white, with dark lilac at the bottom of each petal; then, a little further, were masses of Snowflakes; then we came to a deep gorge, down which we looked; it was lined with exquisite Ferns, and, among them, bunches of blue Hepaticas, but all, alas! quite out of reach; further on still were more Hepaticas, with *Daphne Mezereum*. . . . This afternoon we went across the bay to find Hellebore. We walked through a little wood carpeted with flowers, white Violets, Primroses, Hepaticas, lovely blue Scillas, Snowflakes, red Heath, and two kinds of Hellebore, one most beautiful; the contrast of its tender green petals and white stamens is lovely, and it does not smell disagreeably."

Deep-planting Christmas Roses.—I am delighted to see my old friends the Christmas Roses so much in favour. I have always grown them, even when not a fashionable flower. As none of your correspondents mention deep planting, allow me to give you my experience on this point. Owing to some building operations, some large old plants had to be removed, and were planted deep in good soil in the kitchen garden. This happened in 1877, and regularly every season from New Year to April dozens of beautiful Christmas Roses can be gathered with stalks from 5 in. to 7 in. long. After flowering, magnificent large green leaves come up, which quite protect the flowers for the next season. One summer, being absent abroad, the gardener turned out all my favourites to get his line of red, yellow, and blue, straight. However, they were all planted again, and still flourish. Old stools are the thing; I have some forty year old.—M. E. C.

The Nepaulese Poppy (*Meconopsis nepalensis*).—We had half a dozen strong, well established plants of this Poppy, and more than a dozen not quite so strong and potted later. They were all wintered together in a house without any heat, and the result is that all the late potted plants were killed by the frost except three, while the established plants were not at all injured. It is usual to pot-up from the open ground plants that are presumably hardy very late in the season, in order to winter them in cold frames. I would, however, recommend choice and scarce plants be potted early, especially if there is some doubt whether they are hardy or not. And it is also an advantage to plunge the pots in some non-conducting material, such as Cocoa-nut fibre refuse, which will keep the roots at least in a more equable temperature.—J. DOUGLAS.

Annual Poppies.—I agree with the remarks on these (p. 277), and may add that I had a group or two of them last summer which were much admired, and rightly so; for, though the individual flowers are soon over, they are produced abundantly, and prolong the season of flowering at least eight or ten weeks. I, too, prefer the single flowers, though the double forms are more persistent; a double white was especially so with me. One may always be sure of some springing up year after year if once sown and a few plants are left to seed. The seed-pods in themselves are very ornamental, though the leaves are apt to get brown and unsightly.—J. S. T.

Lilium auratum in Nova Scotia.—Some time ago Mr. Burbridge, I think, enquired whether any one had a clump of *L. auratum* of five years' standing. I have one which is the result of a bulb planted at least seven years ago. It has stood the frosts of our inclement winter weather and multiplied. Occasionally the thermometer goes down to 17° below zero, frequently to 10°, and zero is common; this shows that this Lily is quite hardy. It is growing in a stiff clayey loam. It has a few Spruce boughs put on it for protection in winter, and in spring it has a top-dressing of good, old, rich material. With reference to the position for growing *L. auratum*, the clump to which I refer is growing in the full sunshine, but sheltered to the north by a large bush of English Dogwood. The wind bothers it when in flower, and then I contrive some kind of protection, such as large boughs of Spruce, to break its force.—PETER JACK, *Halifax*.

Spring Flowers Mixed.—A very pleasing object is formed by growing Tulips, Snowdrops, or *Scilla sibirica*, any one kind, and *Saxifraga Burseriana* together. Last summer I planted a large 14-in. pan with *S. Burseriana*; in a short time it was growing, and by the time I could obtain the earliest Tulips it had left only room enough to dibble in a dozen bulbs. The pan was replaced in a cold frame and to this time it has not been removed. Now the *Saxifraga* is finely in flower; its dense growth must have benefited the Tulips, for none others of the same lot are so fine, being perfectly developed in their foliage, very robust, and the flower buds just clearing the foliage. The effect when in flower may be imagined by those who know the *Saxifraga*, but even now it is to me such an object of attraction that, though there are hundreds of interesting plants around, and many spring flowers, I can look on and admire it every time I go into the garden.—J. WOOD, *Woodville, Kirkcaldy*.

Hardy Ferns.—Besides *Lomaria alpina*, mentioned in THE GARDEN (p. 278), *crenulata* has proved quite hardy in this climate. The Walking Fern has also survived the winter. It is grown with some Filmy Ferns and *Asplenium marinum* in half a paraffin cask, sunk to the brim in the rockery, with the wide part of it downwards. The top of this half-cask is made to lift off and on, and a small pane of glass is inserted in it, which gives sufficient light to the Ferns. The pots are placed in Sphagnum, which helps to keep the Ferns damp, and in summer they are watered almost every day with a watering-pot having a fine rose.—C. M. OWEN, *Gorey, Ireland*.

THREE LITTLE-GROWN ANNUALS.

AMONG annuals, as well as among other kinds of plants, there are some which, though they possess great beauty, have not for some unaccountable reason come into general cultivation, and of this class may be named the

Blue Didiscus (*D. cœruleus*).—A native of New Holland, growing from 1 ft. to 2 ft. high. Its stems are erect and much branched, each branch being terminated by a flat umbel of small flowers of a pleasing clear blue colour, produced plentifully from August to October. It is a half-hardy annual, and requires rather careful treatment, inasmuch as it is somewhat impatient of exces-



The Blue Didiscus.

they will flower freely. They also make capital subjects for pot culture for the conservatory, &c.; the seeds in this case should be sown two or three in a small pot and then shifted into a size or two larger, in which the plants are to flower. This *Didiscus* is also known as *Trachymene cœrulea*.

The White Sweet Sultan (*Centaurea moschata alba*), here represented, is a beautiful Persian plant which produces white



The White Sweet Sultan.

tassel-like flowers, having a strong, Musk-like perfume. It grows about 1 ft. high, and flowers freely in July and August. It is a hardy annual, seeds of which should be sown thinly in April in a warm border of ordinary soil. It is like the type (which has purplish flowers) and the Yellow Sweet Sultan (*C. odorata*), excellent for cutting purposes, as the flowers last a considerable time in good condition in a cut state. It is sometimes also called *Amberboa moschata*, a name under which it is catalogued by some seedsmen.

The Pink-flowered Fenzlia (*F. dianthiflora*) is a charming Californian annual, forming in its native habitats compact tufts



The Pink-flowered Fenzlia.

from 1 in. to 4 in. in height. Its flowers are large, compared with the size of the plant, and produced in such abundance as to make it conspicuous even at a distance; they vary in colour from purple and lilac to almost white. The plant is perfectly hardy, and, like several other Californian annuals, does best when sown in autumn. It thrives in any ordinary soil, but the warmer and more sheltered the situation is the better. It is synonymous with *Gilia dianthoides*. W. G.

Twin-flowered Christmas Roses.—One of your correspondents asks whether Christmas Roses with two flowers on each stalk are of rare occurrence. The Christmas Rose abounds in this neighbourhood. I had, therefore, during the last very favourable

sive moisture, particularly in the early stages of its growth. It requires to be raised in a gentle hot-bed, and the seedlings should be transplanted in May, selecting for them a warm, friable soil, in which

winter ample opportunity to make the following observations. It is not very rare that some of the flower-stalks of strong plants are two-flowered, but plants with all the stalks two-flowered are very scarce. I found only one among many thousands. As an example of the beauty and luxuriance of the varieties in our neighbourhood, I have taken the liberty to send a plant.—T. KOEPPEN, gardener to Otto Forster, Esq., *Lehenhof, Scheibbs*. [We have to thank our correspondent for a fine plant, which came in good condition, with many flowers on it, and for the most part twin flowers. The blooms seem bolder than they usually are with us, as if the climate exercised some peculiar influence on them.]

THE FRUIT GARDEN.

FRUIT CULTURE FOR PROFIT.

The Cordon.

Like the Palmette Verrier, this kind of tree does not find much favour with gardeners, who like to see a good wide-spreading tree with branches reaching 20 ft. or more along the wall. Though I should not recommend a whole wall to be planted with cordon Pears, as I prefer the Palmette, yet for covering blank spaces anywhere they are very suitable, filling up quickly and coming into bearing immediately. This is a great advantage; if we plant our trees at wide intervals we must wait wearily for fruit, and perhaps death may call upon us first. No, except in great gardens, where all things may be on a great scale, the days of large trees are over; speedy results are required, and there is no reason why they should not be obtained. Besides, with smaller trees on the Quince, we may have more variety in our fruits, and a greater prospect of always having a crop on some of our trees. When one of the monster trees fail to produce blossoms, or if they refuse to set, it is like losing the produce of a good sized garden. But by planting a greater number of trees to occupy the same space we shall certainly have a better prospect of having a crop. And I have noticed when a bad ungenial season comes, the comparatively young medium sized trees always beat the old ones. This, indeed, is only reasonable, for the smaller, younger tree has its roots near the surface and gets the benefit of the solar warmth where there is any; and in bright sunny summers the roots can be fed near the surface and made comfortable, but the roots of the big tree have to cater for themselves, and are away among the crude unwholesome clay or gravel subsoil. Cordon training need not be confined to walls, or even espaliers. They may either be trained along a single wire by the side of the paths as an edging, or a series of wires may be run in parallel lines about 18 in. from the ground and double cordons trained over them, and there are other modifications of the system that will suggest themselves to anyone that gives much thought to the matter. A plot of land of any given size may have wires strained over it at suitable distances; beneath those wires Pears on the Quince can be planted, having previously well prepared the site, and in two or three years a most interesting collection of Pears in full bearing may be had. I have seen this system adapted very successfully in large gardens, but it is to the amateur without a walled-in garden that it will prove the greatest boon, both in providing him with a never failing source of interest, and a very choice addition to his dessert.

Best Aspects for Pears.

All aspects are suitable for some kind of Pear; good Jargonelles and other early kinds have been grown in a north aspect, but the late kinds require a better climate, and a longer season, and a freer circulation of air than can be had from the north side of a wall. There is no doubt the shelter of a wall does give increased size to the fruit, but I have met with many instances where the large, handsome fruit from an east or west wall has been inferior in flavour and melting condition to the smaller specimens from pyramids or espaliers that are growing fully exposed. In our changeable climate there are seasons when a thick, heavy atmosphere prevails for many days together, and the sun is scarcely able to struggle through. It is in view of, and to meet such times, that I say plant Pears on walls; in short, plant them anywhere and everywhere. If there is not space for a full-sized tree, plant a five-branched Palmette, and if there is only a foot or two vacant plant a cordon. Let the early kinds occupy the worst aspects, and reserve the best places for the choice winter fruit. The same rule holds good with regard to espaliers. Let

all be filled up, and plant cordons, and pyramids too, wherever there are suitable positions. Certain I am no one having space for fruit trees will regret planting good kinds of Pears, as their value in a commercial sense is greater than most other kinds of fruits. In planting trees against a wall leave 3 in. or 4 in. of space between the lower part of the stem of the tree and the wall. When planted close to the wall the stem has not sufficient room to swell, and it is no uncommon occurrence to see the tops of old Pear trees forced from the wall by the pressure of the swelling bole at the base. It is well to have Pears on walls in every conceivable aspect. It is well also to have Pears in the open border under all the conditions, as regards training, aspect, &c., that I have noticed, in order that good fruit may always be obtainable in bad seasons. Many instances could be given where the same kind of Pear varies so much in the same garden as to appear a totally different kind, owing to the influence produced by aspect and training. In planting a wall of Pears, unless the subsoil is dry and warm, the bottom of the border should be paved or concreted 6 ft. wide from the wall, and the concrete, if concrete is used, should be of sufficient thickness to be impervious to the roots—from 4 in. to 6 in. will suffice in most cases. The depth of soil should not be less than 2 ft. for the palmette and cordon, or other small or moderate-sized trees, and 3 ft. will not be too much for large growing trees on the Pear stock. The distances the trees should be planted from each other should vary according to the stock used, kind of training, &c. Pears on Pear stocks trained horizontally will cover a large space. I have seen such trees covering 40 ft. in length of a 12-ft. wall; but I don't believe in such trees; I would rather have two or three trees occupying the same space. The same remark holds good with trees of all forms of training. Full sized standards in the orchard may stand 20 ft. or more apart if left to grow unchecked, but if root-pruned then less will suffice, as after they are brought into bearing they make less wood. So it is with the pyramids. It is a cultivator's question; if he likes to lift or root prune, the distance may be reduced; but if on the Pear and full growth permitted, 20 ft. will not be too much; if moderately pruned, 12 ft. will be enough. When grafted on the Quince the trees may be planted nearer to each other, though of course the treatment it is intended to give the trees must be taken into consideration. If lifted or root-pruned, from 4 ft. to 6 ft. will give space enough for years; but if an opposite course is followed, 8 ft. or 10 ft. will be better. Some allowance, too, must be made for the character of the soil and climate of the place, as these have an important bearing upon the tree's development. No practical man will lay down any hard or fast line either for depth of border or the space a particular form of tree is to occupy, as such a course prevents a cultivator taking advantage of his situation and making the most of his circumstances.

Summer Management.

Fruit trees in training may be compared in many respects to boys at school. A strong, firm, yet withal gentle, hand must be laid on some to repress and check evil habits, to control that tendency to get out of order that seems so irrepressible in vigorous youth. There is much, too, in common in their necessities as regards summer management of all kinds of fruit trees; therefore much that has been written about the Apple will apply to Pears and other fruits that will be treated of subsequently. There is the same need for keeping the growth thin. There is the same need for the exercise of discrimination between the different subjects and their varying constitutions. We have not only to guard against faults of omission, but also those of commission, which are often the most dangerous. The cultivator that in summer pruning applies the same rule to all alike unthinkingly will be led into error. There are Pears that make a good deal of wood, and the growth of these must be thinned and regulated in summer; but there are others which, when fairly brought into bearing condition, make so little wood, it may be left on till August to give activity to the circulation. Winter Nelis and Easter Beurré, two excellent late Pears, belong to the latter class, whilst Duchesse d'Angoulême belong to the former. Again, there are seasons when the summer pruning may be delayed till July, or in some cases later, but when the crop of fruit is thin and the growth more exuberant it will be better to begin pruning early, or, say about the end of June. A tree that is well laden with fruits, not likely to become over luxuriant, and it is never wise to trim every green twig off such a tree. It will be gathered from what I

have written that I look upon a crop of fruit as the best and most natural regulator and steadier of a tree's system, and that the summer pruner's skill should be mainly directed to those trees that do not bear good crops in order to induce them to do so. To this end, a watchful eye should always be given, but especially in August. It is then that the fruit-buds are in course of formation, and a little extra growth or a little less sun-light may convert what might have been fertile buds into leaf growth. In their early stages the difference between the buds that produce blossom and those which produce leaves is but slight, if indeed there be any difference, and the production or the conversion of one to the other often depends upon a slight check given to growth, or a larger influx of light at a particular season. If we examine any Pear tree in August, we shall see, if the tree is in good condition, numerous short spurs scattered all over the tree from 1 in. to 2 in. long. Marie Louise and one or two others bear fruit on longer spurs, but, speaking generally, the fruit spurs do not exceed the size I have mentioned, and they are often less. At the end of the spur is a stout little bud, which at the season I have named is already showing signs of plumpness and fertility, and it is about this period that all surplus wood should be removed to let in the sun and air to ripen these partly developed fruit buds. Though the work of filling up and elaborating the buds is doubtless going on always, yet there is time when the final impulse to fertility or the reverse is given which no after treatment can alter, and that time I think is in August. Thinning of the fruit should be commenced as soon as all danger of frost is passed, removing the weakly and deformed fruits that can never make perfect specimens first; later in the season, or in July, the final thinning should be given, and in the majority of seasons the young fruits from this last thinning will do for stewing or cooking. The best kinds of dessert Pears are excellent for stewing when in a green state all through the summer. Except by the best cultivators, thinning of the fruit is far too much neglected. "Hanging like ropes of Onions" is a very common boast, but I never hear it without a feeling of pity for the person making it and those he caters for. We cannot eat our cake and have it too; and over-work in the case of man, beast, or tree will tell its own tale; besides, over-work in nine cases out of ten means work badly done. The fruit from an over-loaded tree is always imperfectly finished; but no one can say with certainty how much weight a tree should carry without seeing it, as what would be a heavy load for one would only be a light one for another; and it will be obvious, too, that when extra help is given in summer, at the time when the load hangs heaviest, the exhaustion following a severe effort may be mitigated or removed. There are two principal ways in which help can at critical moments be given to trees bearing heavy crops. The first is by mulching with good manure over the roots, and, if possible, as far as they extend, and the second is by watering with sewerage or liquid manure; even plain pond-water will be useful if the stronger liquid cannot be had. Mulching and watering in the case of Pears on the Quince grown in shallow borders is well-nigh indispensable.

Winter Management.

This consists in pruning, training, and in dressing the trees for the destruction of scale or other insects, when such are present. As regards pruning, where the directions for summer management have been properly carried out the pruning in winter will consist mainly of cutting out old or dead spurs, where such are to be found, and in shortening and smoothing the snags left from the summer pruning. In training trees on wall or trellis all ties that are likely to become tight during the next summer, even if they are still strong, should be removed, and new ones, loosely placed, substituted. Where nails and shreds are employed every branch should be gone over systematically, and all unsound or tight shreds removed, to be replaced with new. Young hands are very apt to use more of both than is really necessary, and much time and material is wasted in consequence. The tree should be securely fixed to its support, but all labour beyond that is worse than wasted. It would be an advantage if all walls were either wired or studded, and the trees tied to the wires or studs, as the case may be. Whatever is used for training, other than nails and shreds should be driven in almost close to the wall, to bring the trees as much under its shelter as possible. Training with nails and shreds not only takes up more time, but the materials cost more, and, worst of all, the holes made in the wall are so unsightly,

and are such a harbour for insects. I have already said something of the advantages of exactitude in training. Negligence or slovenliness in the work is often the prelude to a laxity in other matters. Every man or boy who aspires to be a good fruit grower should either possess a true eye, or should assiduously endeavour to cultivate the faculty of detecting when a tree is truly balanced and the branches laid in rightly, as anything that deviates from the truth is displeasing to the trained eye and mind, and not only is this so, but a well-trained equally balanced tree, if not too tightly braced up, is likely to be more fruitful and to have a longer existence than if neglected and the work imperfectly done. In the thinning and pruning of orchard trees all that has been written about the Apple is applicable to Pears.

Insects, Diseases, &c.

On suitable soils the Pear lives to a good old age without being much subject to disease or insect attacks, but in some seasons on light soils the Pear slug—the slimy larvæ of a species of sawfly—is very destructive. The perfect insects are generally flying about in May, or early in June, and the eggs are deposited mostly on the upper side of the leaves, where they feed on the green matter of which the leaves are chiefly composed. The slug-like larvæ are generally most destructive in July or August, and if some means are not immediately taken to destroy them, they will rapidly strip the trees of their leaves, to the ruin of the crop of fruit and the general weakening and disorganising of the tree's health for the future. In my experience in dealing with this insect, I have always found quick-lime dusted on through a dredger quite efficient in destroying them; clear lime-water, too, is nearly equally effective, and leaves less deposit on the foliage. Other remedies have been recommended, such as Hellebore powder, and whatever is used should be used promptly. There is a species of brown scale that is sometimes found on the branches of Pear trees, drawing its food through the bark, and though its action may not produce any immediate effect, yet it surely, though slowly, weakens the trees, and measures of attack should be taken before it becomes numerous. Painting or washing the branches with Gishurst Compound in winter, 8 oz. to the gallon of water, will destroy it and cleanse the bark from Moss and other parasites at the same time. The compound may be thickened into a paint with clay, lime, and soot in equal portions, with a handful or two of sulphur added, and applied with a painter's brush, rubbing it well into the crevices and cracks of the bark. Caterpillars sometimes coil themselves up in the young leaves in early summer, and must be sedulously sought for and destroyed by hand-picking. In ungenial seasons and on cold soils and aspects some delicate kinds of Pears crack, and are further injured and disfigured by mildew. Glou Moreau, an excellent winter Pear, is sometimes injured from this cause. Where it can be done, the best remedy is to move such trees to a better aspect, or at least lift the roots nearer the surface, adding fresh loam, and mulching the surface with manure to encourage the roots to continue there. Canker sometimes attacks Pears in the same way as Apples are affected, and it generally arises from the same cause, viz., deep rooting in bad soil causing watery, unhealthy, badly-ripened growth.

Renovating Old Trees on Walls.

Walls are too expensive in construction to be indifferently covered, and I think it is perfectly certain that in the long run there is no fruit that will pay better for wall space than Pears. But then the whole face of the wall must be covered with fertile wood, not wide spreading trees with the middle unfruitful. The best way to deal with trees in this condition is, if they are trained horizontally, to cut the branches back to the trunk and start afresh with new wood. This should be done tentatively, not all in one year, commencing with the bottom, to give the branches there a start, and then work upwards. Cut about a third the first year, and so on, completing the renewal in three years, and this may, in most cases, be done without a total loss of crop. Another way of performing the same operation of renewal in less time is to leave on the bottom pair of branches and cut off all the others close to the trunk, trimming off all spurs from the pair of branches left. When the spring comes round and the pent-up force of the tree rushes out, which, having fewer outlets, it will do with amazing strength, the necessary number of shoots can be selected and trained up vertically 1 ft. apart. If another pair of branches are left about half-way up the tree, some time may be gained, as ver-

tical shoots can be taken from them also, and the wall may be clothed, or nearly so, in one year. At the end of the summer it will be a good plan to open a trench 6 ft. or so from the trunk of the tree, and try to find some of the roots, bringing them nearer the surface, adding at the same time some fresh soil and manure to encourage them to make new fibrous roots and get the tree quickly into a free bearing condition. Pears on espaliers may be served in the same way if unfruitful from the same cause. Any variety that has proved unsuitable to the district should be re-grafted with a variety that has proved reliable.

Gathering, Storing, and Maturing the Fruit.

Some of the early Pears may be left on the tree to ripen, but others, like Williams' Bon Chrétien, should be gathered a few days before they are ripe; indeed, I generally like to gather all except the commoner kinds a little time before ripe, as, if left too long, and they fall from the tree, they are bruised and sometimes unusable. The general custom is to gather the Pears on any given tree all at once, but there is a period when the work of the tree in regard to each fruit is completed, and it is at such time that the fruit should be gathered, just before its fall to the earth by the force of its own gravity. But that period does not arrive to all the fruits at the same time, therefore it cannot be right to gather all at one time. To have Pears in perfect condition and to make the most of the crop, the trees should be gone over two or three times, taking the ripe ones only each time. To ascertain when a Pear is fit to gather, grasp the fruit with the fingers and thumb and raise it upwards, and if the leverage thus brought to bear does not cause the fruit to part from the stalk readily, the fruit is not ripe. I hope I have made it plain that when all the Pears are gathered from any given tree at the same time some must be unripe, and this, especially in the case of late kinds, is one of the chief causes of their shrivelling. The fruits must, of course, be gathered carefully, and all blemished and inferior specimens be placed by themselves for cooking or stewing, or for present use, the best only, except in a time of scarcity, to be stored away with great care in a well-arranged fruit room. Many of the fruit rooms, even in good gardens, are not well adapted for keeping fruit. A fruit room should be dry, and possess a steady, regular temperature, and should be frost-proof. To secure this of course more pains must be taken in their construction than is customary. The fittings are of far less importance than that a steady, regular temperature, free from frost and damp, be secured. Of course any builder can construct a frost-proof building if he is instructed to do so, and it is better to incur a little extra expense and it need be but little, in doing so than to build a mere shell of a place and put a fire-place or hot-water pipes in to dry up and shrivel the fruit. But there are in most country houses dry, frost-proof cellars, often unoccupied, that might, at a trifling expense, be fitted up for the choicer kinds of late Pears, where they would keep in prime condition till their proper season arrived. And a place of cool, even temperature would be exceedingly useful in summer, when Peaches and other soft fruits came on faster than they could be consumed. In bringing Pears to the best possible point of maturity some help is sometimes required. I have known Pears, especially late kinds, which, if left in the fruit room, never would become melting and good flavoured, but move them to a forcing house, or place them in a warm cupboard for a week or ten days, and the effect is magical; what was before hard lumps of crude, Turnip-like matter become delicious and melting under the influence of the extra warmth. Late Pears keep very well wrapped in paper and packed away in boxes, barrels, or in earthenware jars; this economises space, and the fruit keeps well, only of course none but sound, good specimens should be treated in this way.

Protecting the Blossom.

Pears generally open their blossoms before the Apple, and are consequently, to some extent, more liable to injury from spring frosts; but it is the cold piercing wind that does so much injury to fruit tree blossoms during a cold spring, especially when the flowers are damp, and it is to shelter from the biting winds and damaging effects of snow, sleet, and cold rains that most of our efforts should be directed. I have often noticed in old-fashioned gardens, where old buildings with projecting overhanging eaves abound, that the fruit trees against such buildings are seldom without a crop, and no doubt a building of any kind is warmer than a mere wall. I was walking over a garden last summer and

noticed a singular instance of the effect of the shelter afforded by a slight recess in the wall. A Pear tree was trained on the gable end of the stable; there had formerly been a window near the centre towards the top to give light to a loft. And in bricking it up only 4½-in. work was employed, and as it was built flush inside, a recess some 5 in. deep, the size of the window, existed outside. The Pear tree covered the whole gable end, and in this recess the fruit hung thickly, whilst on the other part of the tree the fruits were very thin. The difference was remarkable. I examined it closely to see if it could be accounted for in any other way, but I was obliged to come to the conclusion that the shelter afforded by the recess was the cause of the difference in crop. If we could keep off cold storms of snow, sleet, and rain, and break the force of the cutting wind, we might at least count upon having a moderate crop of fruit in even difficult seasons. In walking across a bleak open heath or common the moment we leave the open country and enter amid the lanes and hedges of the cultivated districts we feel the effect of the hedges in toning down and softening the wind, although the hedges may be bare and leafless. A patch of Furze or a Thorn hedge holds the wind in its tight embrace and seems to rob it of its icy coldness; and the knowledge of this fact has led many to make a free use of branches to protect fruit tree blossoms. Up to the present time this has been mainly confined to evergreen branches such as Yew and Spruce Fir, but I think so far as Pears are concerned small branches densely loaded with small twiggy growths even without foliage would be found very useful in preserving and sheltering the blossoms; small pieces of Birch, Elm, Lime, and Hazel or any other tree that produced a goodly number of small twigs, the thick end tucked under the Pear branches, leaving the twiggy points drooping downwards, would often arrest the cold particles of snow or sleet and convey it to the earth. They would also help to break up and distribute the force of the wind; they would cost next to nothing, and we may rest satisfied that if they did no good they will do no harm. We all know the value of even a single thickness of old fishing net as a protection to fruit trees or any other plant in spring, and branches rightly distributed are as valuable as nets. Looking back and taking note of the many instances where a crop of fruit has been saved by a good coping I can have no hesitation in recommending temporary copings to be used in spring, either made of glass, wood, canvas, or reeds. My idea of a good coping would be something that could be worked on hinges, and folded back on the wall in fine weather to give air to the tops of the trees. The objection to all wide copings is they give shelter when the trees would be better exposed. I have never seen any arrangement of this kind at work, but I don't see any difficulty about it; it should be made as light as is compatible with strength. E. HOBDAY.

— Permit me to correct two misprints which occurred in my remarks on "Fruit Culture for Profit." For "to answer the question *formally*" read *satisfactorily*; and for "*pendulous borders*" (p. 320) read *pendulous branches*. J. S. W.

EARLY FORCED STRAWBERRIES.

Few fruits are more prized than early Strawberries, a fact confirmed by the prices obtained for them in Covent Garden during February and March. There a combination of circumstances has kept down the prices of ordinary goods to a low level, but early Strawberries are an exception; indeed, they realise what may be termed a fabulous price per ounce. Nevertheless, high prices do not tempt many market growers to embark in the forcing of Strawberries for market much before April, when the larger yield, at 6s. or 7s. per lb., pays better than say 2s. 6d. per oz. earlier. But in private gardens, where various degrees of temperature to suit Strawberry forcing are kept up for other forced fruits, flowers, and vegetables, a few dishes of very early Strawberries may be procured without any special outlay. The main thing they require is unremitting attention to the small details of routine culture, all of them as old as Strawberry forcing itself. And there is no insurmountable obstacle to overcome in procuring limited quantities, although for main crops we find the end of March soon enough to calculate on a regular daily supply, or when the plants may be said to produce a full crop according to the size of pot and space which they occupy.

We gathered our first dish of Vicomtesse Héricart de Thury on February 23, or about a week later than last year, but for several weeks we hardly had a gleam of sunshine, but, on the contrary, a cold foggy atmosphere, about the worst that could be experienced

for early forcing. Since that date we have had a few brighter days, and the successional crops are making much more rapid progress. Strawberries dislike dry fire-heat, and one bright day, when one can shut them up with a brisk sun-heat, helps them forward more than three days of semi-darkness such as we have had so continuously during the last two months. I have tried most of the early kinds of Strawberry in cultivation, but at present have not found any to beat the Vicomtesse Héricart de Thury. It flowers freely, and sets well under adverse conditions; in fact, its greatest drawback is producing too many flower spikes, which keep continuously pushing up, thereby weakening the plant, and for this reason I am inclined to grow La Grosse Sucrée, which sets equally well, and only sends up one or two good bold trusses of flower that are quite sufficient for a crop, as five or six good fruits are better than a quantity of small ones.

We find the only way to get really good results from such early forced plants is by starting very early the preceding season; we employ the very earliest runners in 6-in. pots, that were quite full of roots by the first of August, when, to keep them from suffering through drought, we plunge them in ashes, and cover them with glass sashes to keep off heavy autumn rains; such plants we introduced into gentle heat in the end of November, keeping them quite close to the glass and fertilising the blooms with a camel's-hair brush when dry at mid-day, a gentle circulation of air being kept up. Each pot is set on a square of turf that can be moved about with the pot; they are set on top shelves of vineries, &c., and are moved to light, span-roofed pits to ripen. J. GROOM.

Linton.

SEASONABLE WORK.

Strawberries.—To keep the most troublesome insect we have to contend with in this department in check, copious syringing at least twice a day will be absolutely necessary at all times when the plants are not in flower or ripening of fruit. When early fruiters reach this stage, remove them to a warm, dry, airy house for a few days, and give very little water to the roots. If possible all the advancing crops should be brought on and set in well ventilated pits, which can be thoroughly cleansed when the season is over, and where a temperature ranging from 50° at night to 65° by day can be maintained. Keep them near the glass, give sufficient air to prevent the leaves from becoming drawn, and fertilise when in flower. Keep a sharp look out for fungus, which, within the last few years has been so destructive to President, one of our best forcing varieties. The best remedy or preventive is syringing with clear sulphur water before and after the fruit is set. Place late kinds in cold frames for carrying on the supply until the fruit is ripe out of doors. Harden off early forced plants of Héricart and other early kinds preparatory to planting out for an autumn supply of fruit.

Peaches.—It will be necessary to keep the temperature in the early house as steady as possible until the fruit has passed the critical process of stoning. A night temperature of 56° to 60°, with a rise of 10° to 15° by day, will be quite safe for the present; but should the weather continue as bright as it has been for the past week a few degrees higher from solar influence alone after closing will help to make up for time lost through the early stages. Syringe with soft water twice a day, give a little air early, and gradually increase it until the maximum is reached. Open the front ventilators when the weather favours a circulation without producing a cutting draught, and close them when the heat begins to decline. Follow up disbudding and pinching, heel in young growths intended to remain with a tie near the base, and guard against laying in more wood than is likely to be wanted next season. Inside borders will now take heavy waterings, the quality of the liquid being regulated by the strength of the trees and the crop they are intended to carry.

Succession Houses.—Favoured with good weather, trees in these houses have set heavy crops, and thinning with a liberal hand will have to be carried on simultaneously with disbudding. Watch closely for greenfly, fumigate with Tobacco paper, and syringe before the sun strikes the house the following morning. Directions as to watering and syringing given above will apply here, but the mean temperature must range a few degrees lower. Late houses are now coming into bloom, and look promising. Give abundance of air, and avoid giving fire heat unless the weather becomes dark and damp or there is danger from morning frosts, when it will be necessary to keep up a circulation of air at a temperature ranging from 50° at night to 60° by day.

Figs.—In close compact houses, which are considered best adapted to early forcing, it is necessary to guard against keeping the trees too closely confined in a high temperature, and so producing a soft elongated growth, which no after-management can correct. To avoid this let early trees in pots or otherwise have a night temperature of 60° to 65°, with a little air at 70° to 75° by day. Run up to 80° on bright sunny days, with a free circulation, and close early with an abundance of moisture. Attend to the top-dressing or mulching, increase it as the roots appear on the surface, and water copiously early in the day. As many of the most forward Figs will soon commence the last swelling, see that all thinning and stopping of weak growths and tying down is kept well in hand, in order to admit light and solar heat to the fruit, without which the quality will not be good. Ply the syringe freely in succession houses, mulch well, and

give inside borders plenty of tepid liquid. If thickly set, a few of the worst placed fruit may be removed before they have time to endanger the whole of the crop by overtaxing the trees. W. COLEMAN.
Eastnor Castle, Ledbury.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MARCH 22.

SELDOM has there been a better spring show at South Kensington than that which took place on Tuesday last; exhibits were numerous, and throughout the entire show there were excellent examples of skilfully grown plants. New and rare plants, on the contrary, were not so numerous as usual, though a few fine plants were shown for the first time.

First-class Certificates were awarded as follows:—

To Sir Trevor Lawrence, Bart., Barford Lodge, Dorking, for—

Dendrobium lituiflorum candidum.—A chastely beautiful variety, perhaps the finest of all the white-flowered Dendrobies. It differs in no way from the original except in the absence of colour, the petals being pure white and the concave shell-like lip of a pale primrose shade of yellow. The plant shown, which was in a basket, was well grown and remarkably well flowered for its size.

To Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, for—

Amaryllis Mr. Henry Little.—One of the finest varieties yet raised, the colour a rich rose-purple being quite distinct from that of the majority of existing kinds. The flowers, which measure over 7 in. across, have unusually broad petals of firm texture and so arranged as to form a flower of great excellence.

To Mr. Wells, gardener to Mr. R. Ravinhill, Fern Hill, Windsor, for—

Fuchsia hybrida rubra.—A variety the result of crossing F. Dominiana and F. serratifolia. The seedling in question is very fine, remarkable for its freedom of flowering and the brilliant colour of the blossoms, which are some 3 in. in length, having a long crimson tube and a vermilion-scarlet corolla. The plant shown was about 3 ft. in height, of bushy habit, and thickly furnished with flowers. It is said to have been in flower since October last.

To Mr. H. Little, Hillingdon Place, Uxbridge, for—

Cyclamen persicum Ruby Gem.—A variety with intensely deep crimson flowers—in fact, the deepest tinted form that has yet been exhibited. It is a free flowerer and the blossoms are of good size and form.

The principal exhibits in the conservatory consisted of the magnificent groups of Hyacinths, Amaryllises, and Camellias shown by Messrs. Veitch, to whom a gold medal was awarded for each of the collections just named. The Hyacinths numbered upwards of 200 plants, and represented all the leading varieties, including several new kinds; noteworthy among the latter were Primrose Perfection, a kind with a large compact spike of single flowers of a delicate primrose colour; Czar Alexander, deep purple, large in the spike, and an extremely fine variety; Sir Frederick Roberts, single deep rose, large and dense in the spike; Beatrice, a single delicate blush; Sir Harry Barclay, single pale porcelain; Queen of the Blues, semi-double, pale blue, and very large in the spike. All were superb examples of high-class culture, not a faulty plant being in the group; the only detractive point was the want of intermixture with other plants to relieve their monotony. The Amaryllises were perfection, and seldom if ever has such a large collection been shown at one time: the group embraced many new kinds different from those we had occasion to mention in the report of the last meeting. Among the newer sorts the most noteworthy were Ophelia, scarlet with white stripes; Novelty, large in the flowers and fine in form, colour greenish-white with broad bands of deep crimson, and spotted with the same colour; Princess Beatrice, a very free-flowering variety, two spikes bearing no fewer than a dozen flowers, which though not of large size are of very brilliant scarlet colour.

Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, was awarded a gold medal for an extensive collection of Orchids in flower, effectively arranged with Palms, Ferns, Dracenas, and other fine foliaged and flowering plants. The Orchids, numbering about 100, included about a dozen species of Odontoglossum and a similar number of Dendrobiums and Cypripediums and various other genera. The most remarkable were the beautiful Dendrobium Dalhousianum, of which there was a well flowered plant; the singular Bulbophyllum siamense, Epidendrum paniculatum, Masdevallia Lindenii superba, a splendid variety; Laelia harpophylla and three new hybrid Cypripediums, viz., Turneri, politum, and chloroneurum, all of which appear to have been derived from C. venustum, crossed with C. barbatum, Veitchi, and Dayanum. The fine new Imantophyllum cruentum, as

well as Martha Reimers, certificated at the last meeting, were much admired for the beauty of their large umbels of flowers.

Roses were shown from Messrs. Paul & Son's nurseries, at Cheshunt, and were highly attractive. They were fine examples of skilfully forced plants, the blooms being scarcely less inferior in size, form, and colour than those gathered at midsummer. The collection, numbering some scores of plants, included such fine sorts as *La France*, *Souvenir d'un Ami* in fine condition, together with the newer varieties, for example, the brilliant crimson-scarlet *Duke of Teck*, *Madame Alphonse Lavallée*, the latter in the way of *Marie Baumann*, but even finer than that well known *Rose*. A gold medal was deservedly awarded for this collection.

From Messrs. Cutbush & Son, Highgate Nurseries, came an extensive group of plants, including a large collection of well-grown and finely-flowered Hyacinths and Tulips and *Azalea mollis*, the latter being particularly noteworthy on account of the delicate soft colours of the flowers, which are unsurpassed by those of any other spring-flowering shrub. A fine collection of cut blooms of Camellias, representing a large number of varieties, added much to the attractiveness of Messrs. Cutbush's display, to which a gold medal was appropriately awarded.

The General Horticultural Company contributed an extensive group of plants. It consisted chiefly of Crotons, Ferns, *Dracenas*, Palms, and other fine-foliaged plants, interspersed here and there with flowering plants and Orchids. The way in which these were arranged, with dwarfier plants, such as *Lycopods*, *Forget-me-nots*, &c., was highly effective. A gold medal was awarded to this exhibit.

Cyclamens probably were never better shown than on this occasion. The large group from Mr. H. B. Smith, of Ealing Dean Nursery, and the smaller one from Messrs. Barr & Sugden were unusually fine, and showed the Persian Cyclamen in its highest perfection. Mr. Smith's collection included, besides his ordinary strain, which is very fine, a few named sorts. *Queen Victoria* is one of the best pure white varieties yet raised, the flowers being large and of great purity. *Rosy Morn*, *Picturatum*, and *Duke of Connaught* all previously certificated; while *Rose d'Amour*, a rich rosy purple, *Prince of Wales*, and *Picturatum compactum*, a dwarfier growing form than the original, were among the newer varieties. Mr. Smith was awarded a gold medal, and Messrs. Barr & Sugden a silver Banksian. Mr. J. Wiggins, gardener to Mr. Little, Hillingdon Place, Uxbridge, likewise showed a group of Cyclamens remarkable for the intense deep crimson colour of the flowers, darker than any we have ever seen, and forming a beautiful contrast with the large group near Mr. Smith's pure white kind. A silver flora medal was awarded.

A gold Banksian medal was awarded to Captain Patton, Regent's Park, for a very fine collection of Hyacinths and Tulips, numbering about 100 of each. The spikes were large and dense, and the varieties so selected as regards colour as to make a most attractive group. The remarkable examples of *Dielytra spectabilis* and *Hotia japonica* shown by this exhibitor were likewise much admired, and showed well what might be done with these plants in a skilful cultivator's hands.

A fine group of named varieties of *Cineraria* was exhibited by Messrs. Cannell & Sons, The Nurseries, Swanley. Most of the sorts were very beautiful and varied in their colour, while the flowers were large and as near perfection as regards form as could possibly be. These named sorts are all propagated by cuttings, and they are therefore perpetuated similarly to other popular flowers of perennial duration. A few of the kinds which were particularly fine were *Loveliness*, *Geant des Batailles*, *Lustrous*, *Velvety*, *Othello*, *Royal Blue*, *Intensity*, *Little Gem*, and *Jean Sisley*. A silver Banksian medal was awarded. A similar award was made to Messrs. W. Paul & Son, Waltham Cross, who again exhibited a magnificent collection of cut blooms of Camellias, rich in variety and varied in colour, showing well how finely the Camellia can be grown under skilful treatment. The same firm also showed several varieties of *Primrose* *Scott Wilson*, which varied considerably in colour.

For a very fine group of Hyacinths and Tulips, numbering some 200 plants, a gold Banksian medal was awarded to Mr. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston. These were well grown and flowered, and were thoroughly representative as regards varieties. An attractive group came from Messrs. Osborn & Son, Fulham, consisting of Hyacinths and other bulbous plants, together with some fine plants of *Rhododendron præcox*, one of the earliest as well as the prettiest of the hardy species; and a choice selection of hardy flowers, including the charming *Chionodoxa Lucille*, *Puschkinia libanotica*, and *Sisyrinchium grandiflorum album*. Mr. Douglas, Loxford Hall, Ilford, was awarded a silver Banksian medal for half-a-dozen admirably grown specimens of *Deutzia gracilis*, a yard high, and nearly as much across. A similar award was made to Mr. R. Dean, Ealing, for a

large basket of plants of *Primroses*. Among them were the pretty *P. rosea* and several varieties of *P. acaulis*.

Mr. Aldous, South Kensington, showed a pretty group of plants suitable more for embellishing rooms, &c., and Messrs. Smith & Larke had some prettily designed bouquets. Among other exhibits were groups of forced *Lilac* *Charles X.* and the new *Staphylea colchica*, the beautiful white blossoms of which were much admired. These were exhibited by Messrs. Lee & Son, Royal Vineyard Nursery, Hammersmith.

Mr. Bentley, Scarborough, exhibited his new patent spray apparatus, alluded to in another column.

Special Prizes.—There were five competitors for the prizes offered by a Fellow of the society for nine pots of Hyacinths and the same number of Tulips. The first prize, a silver cup, was won by Mr. Douglas, gardener to Mr. Whitbourne, Loxford Hall, Ilford, with a finely grown and well-flowered collection. The Hyacinths consisted of *King of the Blues*, single blue; *Grand Lilas*, single blue; *Gigantea*, single white; *Koh-i-noor*, double red; *Vuurbaak*, single red; *Mont Blanc*, single white; *Marie*, single blue; and *Macaulay*, single red. The Tulips were *Fabiola*, *Vermilion Brilliant*, *Kaiser Kroon*, white *Pottebakker*, *Proserpine*, *Van der Neer*, and *Joost van Vondel*. Mr. Moorman, Coombe Bank, Kingston, who was second, also had a fine collection scarcely inferior as regards growth to that of Mr. Douglas, but less rich in variety. The three other exhibitors, Mr. C. Parker, Old Ford, E., Mr. R. Roberts, Mile End Road, E., and Mr. C. J. Dancer, also of Mile End Road, won the remaining prizes in the order named. All showed very remarkably fine collections, considering they were grown in the east of London, a fact worthy of remark.

Scientific Committee.—The plants exhibited were *Cyripedium Saundersonianum*, a hybrid between *C. caudatum roseum* and *C. Schlimi* (the latter the seed-bearing parent) by Mr. W. Marshall, Rutland Place, Belvedere; *Pitcairnia corallina*, by Mr. C. Greer, gardener to Sir George Macleay, Bart., Rendell Court, Bletchingley; and *Masdevallia Roezli*, by Mr. C. Winn, Birmingham. The two last-named plants were awarded botanical certificates. A spray of *Dendrobium*, bearing eighteen blossoms, which was accidentally broken off three months ago, was exhibited by Sir Trevor Lawrence, Bart. Dr. Masters exhibited shoots of Conifers, with a gumming, or rather resinous disease, the vesicles of which burst, leaving the surface with numerous pits, eventually killing the trees. The Yew tree, eight or nine hundred years old, in Buckland churchyard, near Dover, which was transplanted a hundred yards from its original position, was stated to be now in full vigour. Mr. G. F. Wilson remarked that two valuable horses had lately been poisoned by eating Yew boughs. Dr. Masters also exhibited specimens of *Amelanchier vulgaris*, and alluded to its geographical distribution on the Swiss mountains, North America, Himalayas, and Japan.

Lecture.—In the course of the afternoon Mr. Shirley Hibberd gave an interesting lecture on the history of the Tulip, but want of space forbids us to allude to it more fully.

LATE NOTES AND QUESTIONS.

Violets.—I send you some blooms of a new Violet the petals of which are beautifully marked with pink, and the plants very free flowering. They have been the whole winter one mass of flowers and finely scented. I have them growing side by side with the Neapolitan, and all who have seen them much prefer the new kind. I have gathered flowers from the plants as large as good-sized Pansies.—J. S. [The flowers sent are very handsome and sweet. They are in the way of the kind called *Marie Louise*, but deeper in colour.—ED.]

Greenhouse Blinds.—Allow me to say that I can strongly recommend French blinds for shading. They are by far the neatest and most durable; they are not too dark for plants, and can be easily drawn up and down. I have them removed in autumn and put up in spring. They were supplied in 1879, and are now as good as when new.—C. MORWOOD, Cuswell Hall Gardens, Tamworth, Staffordshire.

Roses on their own Roots.—Will any of your readers who have had some experience in the matter be good enough to give a list of the best dozen of each of Hybrid Perpetual and Tea Roses which they have found to thrive best and make the best flowering plants on their own roots? Some seem, in my experience, to do much better on their own roots than others.—AMATEUR.

Bleeding Vines.—In order to stop this I made up a paste as follows: beeswax and rosin in equal parts, and half the quantity of tallow; these I put into a small saucepan to melt, then I allowed the paste thus formed to get partly cold, so as to be about the thickness of treacle, then wiping the bleeding places dry, I applied the paste with a knife or flat piece of wood, and in a short time it became quite hard and stopped the bleeding.—ALFRED BISHOP, Elm Grove, Saffron Walden.

Daphne.—*H. D.*—It is cockscombed or what is called fasciated, a by no means uncommon occurrence amongst plants, and even trees, as may be seen by an illustration of a fasciated Ash which was given in THE GARDEN (vol. xi., p. 364).

Names of Plants.—*New York.*—Violet *Marie Louise* (an excellent sample).—*R. Hayes.*—1, *Juniperus virginiana* Schott; 2, *Thuja occidentalis*; 3, *Alnus Hookeriana*.—*Old Subscriber.*—*Azalea nudiflora alba*; the variety you send is the whitest.—*T. B. W.*—*Pulmonaria mollis*.—*M. C.*—We cannot undertake name varieties of Camellias; send them to some specialist.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

GARDEN THOUGHTS.

I have been favoured with several reports as to the effects of the weather in different localities upon the Rose, and I offer my best thanks to the reporters. It seems that so far the slaughter has not been nearly so great as we feared it would be in the midlands and the north, but more serious than was anticipated in the southern counties. Accounts vary; some say that Roses have suffered most on the Manetti, some on the Brier; even near neighbours are not agreed, so much difference is there in situation, soil, and culture. One of our principal Rose merchants here in the midlands writes, "We are not much hurt. The older plants are cut the most. Duke of Connaught, Fisher Holmes, Horace Vernet, Jean Lambert are cut to the ground in the permanent beds. Last year's buds, as far as we can tell, have stood well as regards seedling Briers and Manetti. In budded standards we have lost some, but not so many as we feared." The Rose which is by many rosarians esteemed the most beautiful of all, Marie Baumann, seems to have suffered the most, though one of my correspondents, Mr. Walters, of Burton, tells me that he has plants on the Brier which are looking tolerably well, while those on the Manetti are "done brown," and though in the international selection of Roses to which I have previously referred this Rose is number twelve in thirty Roses which are recommended for their "hardiness and insensibility to frost."

In THE GARDEN of Feb. 26, p. 225, Mr. Walters makes an interesting statement that, generally speaking, the English-raised Roses have proved themselves more hardy than those sent out by the French raisers; that this fact should stimulate us to further progress in this respect, and that our English raisers of the Rose are to be congratulated on the improved constitution they have given us. We should naturally expect, and in all probability shall ultimately see, these results, but as yet they are hardly established. He will find the Duke of Connaught on the list of the slain in the preceding paragraph; other correspondents deplore the dangerous illness of the Sultan of Zanzibar; the beautiful May Quennell has a consumptive look; Reynolds Hole does not present that robust appearance of health and contentment which his namesake wears at the shows; and Mr. Walters himself gives evidence in his letter that "Duke of Edinburgh has been badly used." There is no longer any doubt as to the endurance of John Hopper, and I have found the Duke aforesaid a thoroughly good sailor, strong to brave the battle and the breeze; but of the rest we must say "not proven." We have not yet raised in England half-a-dozen Roses on which we can rely so confidently for reappearance, after one of our most cruel winters, as upon Edouard Morren, Gloire de Dijon, Jules Margottin, La France, Paul Neron, and Senateur Vaisse.

My own conviction concerning the harm done to Rose trees is this, that they look better than they feel, but there is much latent disease; that many "buds" might say to their owners, as the gladiators of old to the emperor, *morituri te salutant*; and that it will be wisdom in almost all cases when pruning to remember to obey the advice of the augur, "cut boldly."

Mr. Walters reminds me that although I have selected the best dark Rose in Louis Van Houtte, I have not answered the question of a Devonshire lady, "Which is the darkest?" and he suggests Abel Carrière, La Rosière, Prince Camille de Rohan, and Souvenir de Victor Verdier. There are other candidates, or rather competitors, since we know that the *candidati* were clad in white—Baron Bonstetten, Deuil de Prince Albert, Empereur de Maroc, Eugène Furst, François Gaulain, Pierre Notting, Velours Pourpre, &c.; but they vary according to soil and sunshine, and, as is generally the case with these "dark horses," it is difficult to know which is going to win.

Before I bid farewell for a time to the Roses I must recur to the subject of Roses on their own roots. I have received many communications for and against, not only from England, but from Ireland also. A large majority express their conviction that for endurance, appearance, and economy this form is the best. On the contrary, Mr. Appleby, of the Balby Nursery, near Doncaster, sends me admirable specimens of Rose trees which, budded low on the Manetti, have made abundant roots of their own in their first season of growth; and he asks, "What difference is there between Roses struck from cuttings and Roses struck after being supported by a foster parent for a few months?" My answer is, that if I could ensure such results as those which he sends, I should be perfectly satisfied, and should not trouble myself with further experiments, but in my soil (and it is an excellent soil for the Rose) there is no hope of such consummation. The Manetti stock—I have proved it in thousands of cases to my sorrow—decays and dies, and not one Rose in fifty makes strong roots of its own upon it.

Robust young suckers spring from Manetti stocks, and these are, we know, a sore deception and disappointment to many young Rosarians, who gaze upon them lovingly, and cherish them tenderly as being the veritable Rose. But they do not interfere with Mr. A.'s argument, because they may be prevented to a great extent by removing all eyes from the base of the stem, and altogether, when the budded Rose is rooted, by separating it bodily from the parent stock. In soil like mine, these roots (if any) would not be sufficiently strong to justify an excision, but I will try a few of those sent to me, though I cannot suppose a Rose can be established on its own roots by any process so quickly as by striking it from a cutting.

I do not see why my friend, Mr. Fish, should regret that he is constrained to criticise the statement made by a correspondent concerning the facility with which he has raised Rose plants from cuttings. It is by discussion, commentary, question, and answer that we arrive at truth, and the main hope of my Garden Thoughts is to elicit the experience of others. The writer at p. 249 does not say that February is the best time for putting in Rose cuttings, but only records that certain slips inserted in that month made healthy plants in October. We must be all agreed that the autumn is the better season for those who wish to grow Roses on their own roots to commence proceedings. I have not said that the initiatory process is without difficulties, only that it is not so tedious and insuperable as some would have us believe, and I think that with our modern skill and appliances we could establish all Roses upon their own roots, except those weakly varieties which are always a source of anxiety, and must, sooner or later, be supplanted by their superiors.

In reply to "J. R.," I should have left the cuttings in the ground, thinning and transplanting to give more room; but

as he has potted them, I should encourage with a little gentle heat, and then, in the warmer weather grow them on out-of-doors.

I am told "that I am cutting my old friend the Brier." Yes, I am cutting him daily (with the pruning knife), but I am "cruel only to be kind." I still maintain that for many, if not most, sorts the Brier, from seed or cuttings is the best stock for the Rose; seven-eighths of my trees are so grown, and I hope to bud 2000 seedling Briers in July. But we have only just begun to try the Rose without any stock at all, and my belief is that our beginning justifies the anticipation that this independent form of cultivation will ultimately prove the most popular and successful of all. My advice is that Rosarians should give the process a trial, together with other forms of cultivation, and judge for themselves. I am too old to be very positive concerning anything of the earth, earthy, but I venture to prophesy, from my own experience and the testimony of others, that in half-a-dozen years a very large proportion of the Rose trees of England will be grown on their own roots.

Will some brother spade kindly inform me where, in Cornwall, there are gardens specially interesting which a gardener will be allowed to see?
S. R. H.

NOTES OF THE WEEK.

Spring Flowers at Baden-Baden.—Out before the Snow-drop came the little *Muscari lingulatum*, with its shining turquoise blue flowers, a real gem, being so very early, and of such a striking colour. *Galanthus latifolius*, too, is a very desirable species; its shining green leaves brighten the white of the flowers which possess great substance. Three weeks after this *Erythronium Nuttallianum* unfolds its yellow flowers, which look quite gay. There is also *Muscari Szovitzianum*, now very good: this is perhaps the species which produces the largest spikes of a fine bright blue colour. Next to that comes an Iris from Bokhara, with deep golden-yellow flowers which are produced in numbers in the leaf notches along the main stem—quite a new disposition. This is a new species, and will shortly be named by the writer of the Turkestan flora. The colour of the lovely *Chionodoxa Luciliae* pales and deadens before the vivid Gentian blue of the large sweet-scented corollas of *Tecophylaea cyanoerocus*, which to my mind is the finest spring-flowering bulb in cultivation; some of the flowers measure fully 2 in. across. Here this plant has been out all last severe winter, though the Rev. H. Harpur Crewe reports that it has been cut down even in a frame at Tring. *Anemone stellata alba*, introduced by the Rev. Mr. Ellacombe, is also a fine plant, and horticulturally very distinct from *stellata*; the flowers are very large, white with a tinge of rose. As to greenhouse bulbs, *Lachenalia Nelsoni* is conspicuous; it is a great improvement on *aurea*; some of the flowers have sixteen bells of a pure bright golden-yellow colour.—MAX LEICHTLIN.

The Rock Garden at Southwood, Bickley, though not bedecked so profusely with flowers of alpine plants as it will be later in the season, is, nevertheless, rendered bright and cheerful by means of numerous tufts of *Erica carnea* now studded with blossoms. Among alpine flower tufts of yellow *Drabas* are conspicuous, especially the well-known *D. aizoides*, which is scarcely distinguishable from *D. lasiocarpa* and *D. cuspidata*, all three having bright yellow flowers. We saw here for the first time a good tuft in flower of *Saxifraga sancta*, now being distributed by Messrs. Fröbel, of Zurich. Its flowers are yellow, and somewhat similar to those of *S. aizoides*, but the growth more resembles that of the Aizoön section. In a tuft on the rockery it is very conspicuous, but the flowers individually are not very showy. The pretty North American Mayflower seems quite at home in a moist, peaty border, and is producing plentifully its delicate bluish-pink, and deliciously-scented blossoms. Various methods of treating this plant have been practised in gardens, but an open, moist, peaty border seems to suit it best, though its native soil is a sandy loam. *Androsace carnea*, a somewhat "niffy" alpine to cultivate, was nicely in flower, and a broad tuft of it charming, and so is *Hepatica angulosa*, a giant compared with the common kinds, and preferred by many, as it has longer flower-stalks for cutting. The delicate blue of this *Hepatica* is a worthy rival of *Anemone blanda*, so much admired, but unhappily

as yet far too scarce. It is instructive to observe the varied effects of the late severe winter on such of the plants as are rather tender; some have escaped scarcely harmed, while others are killed outright. On an elevated part of the rockery is a fine plant, *Onosma taurica*; though this seldom survives an ordinary winter even when planted in a flat border, it promises shortly to throw up new growth.

Japanese Maples Inarched.—The New Plant and Bulb Company, of Colchester, send us some curious drawings, showing these Maples with variously coloured and variegated leaves all growing from the same stem, to which they were inarched. The effect in the drawings is singular enough; whether they would get on long together in such curious companionship remains to be proved. In any case the drawings show the ingenuity of the Japanese in gardening matters. This strange skill of a nation uninfluenced by the favourable conditions which nourished the art of horticulture in Europe to its present degree of perfection—this refinement, in much that belongs to the best part of gardening, is a never ending source of interest to us, and one which has never so far as we know been fully studied.

Double White Bramble (*Rubus rosæflorus coronarius*).—This beautiful shrub is destined to become popular, for we observe that in several of the large nurseries a large stock of it is being worked up. It is certainly a lovely Bramble, well worthy the appellation of Bridal Rose, a name we have lately seen applied to it. It is invaluable as a cut flower in winter, and it may be easily forced into bloom as early as November, or even before that. We saw it the other day in good condition at Messrs. Cannell & Sons' nursery, Swanley, where considerable attention is now being paid to it.

Malformed Amaryllis.—A drawing representing a singular freak of growth in the case of an *Amaryllis* has been sent to us by Mr. Otto Gronen, C.E., Rock Island Arsenal, Illinois, through Messrs. Van Eeden & Co., of Haarlem. The malformation consists in the flower-stem forking for about a third of its height. One branch is terminated by three flowers, the other by two, and each cluster of buds is subtended by a secondary sheath. We have made a drawing on wood of the malformation in question, and will publish it shortly.

Green Primroses.—I send you flowers of a green Primrose found near here two years ago. I have the green Cowslip, green Dahlia, and green Rose, but the flowers of these are all deformed; in fact, monsters. The Primrose, however, retains its normal form, and differs from the type only in colour. I took from a hedgebank last year a double Pilewort, the blooms of which resemble the one already in cultivation (I grow them side by side), but the foliage is mottled with black, which is not the case with the old form; moreover, mine has some of the leaves blotched with yellow.—J. M., *Charmouth, Dorset*. [Another correspondent has sent us examples of what seems to be a curious sport of the common Primrose—a green variety—found in a wood near Newton Abbott, Devon. This freak of Nature, he says, is quite constant, having been in a friend's garden for several years, and always retaining the green corolla. The lanes and woods about Newton Abbott, he adds, abound with Primroses, and they form a beautiful sight, but he has looked in vain for a second plant of the green kind.]

Anthurium Veitchi.—A fine specimen of this noble Aroid may now be seen in one of Baron Von Schröder's plant stoves at The Dell, Englefield Green. It has ten finely-developed leaves, measuring from 2½ ft. to 3 ft. long, and about 9 in. wide. The last made leaf is, however, an extraordinary one, measuring, as it does, no less than 3 ft. 10 in. in length, by 14 in. wide, with a very strong petiole over 3 ft. long. This plant, I was told, had attained its present dimensions in a pan only about 14 in. wide. It is now shifted into one about 24 in. wide, in which even better results may reasonably be expected. Grand specimens of *Anthurium Warocqueanum* and *crystallinum* may likewise be seen in the same house.—A. I.

Spring Flowers in Devon.—After 25° of frost the spring garden looks well. Many of the earlier plants are over, but many remain; among the past are *Scilla bifolia* (blue and white), *Chionodoxa Luciliae*, many natural species of winter and spring Crocus, but *Puschkinia scilloides*, *libanotica*, and *libanotica compacta* remain; and the Hyacinths, about 1000, never looked more beautiful. I send the following selection: *Iris stylosa*, *I. reticulata*, *I. pumila* (purple), and *I. pumila* (blue); *Erica codonodes*; *Tulipa sylvestris*; *Primula* (old blue), *P. new double platypetala*, and *P. nivea*; *Ornithogalum* sp. (white); *Periwinkle* (double blue); *Narcissus incomparabilis*, *N. incomparabilis albus*, *N. juncifolius*, *Campanelle*, *N. moschatus*, *N. cernuus*, *N. amabilis*, *N. princeps*, *N. Trumpet Major*, *Queen Ann's Daffodil*, *Double capax*; *N. Pseudo-Narcissus* (wild Lent Lily), *N. P.-N. double*, *N. P.-N. double*, with two heads on one stalk; *Triteleia conspicua* and *T. lilacina*;

Muscari moschatum, M. botryoides, M. b. album, M. b. pallidum, and M. racemosum; Puschkinia scilloides; Scilla bifolia (late kind), S. bifolia rubra, and S. precox; Dondia Epipactis; Gagea lutea; Sisyrinchium grandiflorum; Erythronium Dens-canis; Hellebores, including H. Bocconi, H. purpurascens, H. olympicus var. orientalis, and H. colchicus; Anemone pulsatilla, A. ranunculoides, A. apennina, A. a. alba, A. multifida, A. polypetala, A. coronaria, and A. hortensis.—T. H. ARCHER-HIND, *South Devon*.

The Violet Slipperwort (*Calceolaria violacea*).—A beautiful plant when well grown is this Slipperwort, and one eminently adapted for growing in cool houses, that is, those from which frost only is excluded. In such a temperature this plant thrives to perfection, for it seems to detest a warm, dry atmosphere. We observed a plant of it the other day in flower in Mr. Whitehead's garden at Southwood, Bickley, where its graceful habit and violet tinted helmet-shaped blossoms had a very pleasing appearance. Here it was grown in a cool house, but we imagine it is planted out in the open border in summer.

The Himalayan Primroses.—Botanists tell us that there is an endless variety of *P. denticulata* in its native habitats, so various, indeed, as to defy all attempts at naming or classifying, and in gardens its forms are becoming scarcely less numerous. The other day we observed a great variety of shades of colour, as well as of habit of growth, in a collection of this Primrose in Messrs. Cannell & Sons' nursery at Swanley. There was what is called the typical *denticulata*, gradually merging into one named *cashmeriana*, and this, again, could scarcely be distinguished from *purpurea*, though not so deep. By the way, the true *purpurea* is, we think, the most beautiful of all, the colour being almost as deep as that of *P. capitata*, and the pips and truss uncommonly large. We noticed a few plants of this in flower in the Swanley group. *Pulcherrima* is another of the named forms hardly distinguishable from a well-grown plant of the typical *P. denticulata*; then there are two or three so-called hybrids, the characters of which are hard to define. Be the nomenclature of these Primulas what it may, however, they are among the choicest of our spring flowers; and in localities in which they thrive, and there are few in which they refuse to grow well, they form when in bloom a fine floral sight.

Opening the London Squares and Open Spaces.—A Bill is before the House of Commons with some likelihood of passing, which will probably effect a great change in regard to these which it proposes to open. Within a radius of four miles from St. Paul's the squares affected would be five regulated by Act of Parliament, 188 other squares, and 78 disused burial-grounds. In this metropolis there are 1114 persons for each acre of open space available for recreation, and as many as 23 acres of house property to each acre of park or open space. And yet there are nearly 100 acres of clear garden space within a four-mile radius of Charing Cross inaccessible to the public. The Bill is only permissive. The third clause of the Bill proposes that, with the consent of the owner and a majority of two-thirds of the lessees, either the vestry or the Metropolitan Board of Works might take possession of a square, adorn and beautify it, and devote it to the public use.

The Toothworts (*Dentaria*).—Both graceful and beautiful are the various kinds of *Dentaria* which we have observed in flower about London during the past week, enlivening, as they do, borders hitherto bare. The kinds to which we allude are *D. bulbifera*, with purple flowers; *D. digitata*, with blossoms of a deeper shade than the last; *D. polyphylla*, with gracefully pendulous bunches of pale primrose-yellow flowers and elegantly-cut foliage; and *D. pinnata*, with flowers varying from purple to white. All these thrive in an ordinary border of good garden soil, but are much benefited by partial shade, though they dislike being placed too near rank growing trees or shrubs.

Spring Flowering Irises.—Every choice selection of hardy flowers should include the best of these, for they appear at a time when there is little else to brighten up the almost flowerless borders. Just now the majority of them are in perfection, though the best of all, the Netted Iris (*I. reticulata*), is on the wane, and the plum-tinted variety of it (*I. Kralagei*) has disappeared two or three weeks ago. By far the finest of the non-bulbous group, which, by the way, is now classed by botanists as *Xiphions*, is the lovely Algerian *I. stylota* or *I. unguicularis*, as it is likewise called; but for some unaccountable reason it is so scarce, that we doubt if it could be found even in the large hardy plant nurseries about London. Nothing, however, could well be more charming than a finely developed fresh bloom of this Iris, and the colour, a pleasing, soft lavender, is scarcely surpassed by any flower with which we are acquainted. These characters, combined with a delicate perfume, make it one of the most desirable of hardy plants. Being a native of a warm, dry climate, it only thrives well in a sheltered position on a well drained border

of light soil. Another beautiful spring Iris is the Persian, so fine just now at the Hale Farm, Tottenham. The combination of tints in the flowers of this Iris is exquisite; the recurving stigmas are a delicate cœrulean hue or what is popularly called Cambridge blue; then the dilated portion or falls are a deep plum colour surmounted by a bright crest of golden-yellow. Like the last, *I. persica* requires a warm, light soil; indeed, these spring Irises alone deserve a warm corner set apart for them, where they could receive special treatment. Only one of the bearded Irises is as yet in bloom, viz., the little dwarf *I. pumila*, of which there are now numerous varieties, possessing great diversity of colour. The other bulbous kinds that are flowering in some collections are *I. Histrio* and the new *I. Kolpakowskyana*—both, unhappily, far too rare.

The Palace School of Gardening.—An interesting experiment is about to be carried out by the Crystal Palace Company, to which we wish all success, but the excessive terms demanded from the pupils seem to point rather to a desire to extract something considerable from them than to impart to them information at such rates and under such conditions as are suitable to a class paid as gardeners and horticulturists generally are. Besides, the gardening carried out at the Palace is to a great extent of a kind to combat any healthy aspirations that a student might possess after true and artistic gardening. It is a fine site spoiled. The best picturesque portions are destroyed now, and the whole of the great central part is, from the point of view of garden design, so horrible, that one wishes it were a nightmare instead of a sad reality.

Primroses on Grass.—Primroses may now be said to be the flower of the season. Amongst the many ways in which their beauty may be utilised is that of growing them in the Grass, not where the mowing machine is used every week, but where the Grass is only mown with the scythe three or four times during the year, and then not so closely as to cut off the crowns of the Primroses. We have many such spots on banks and amongst choice trees and shrubs, and they certainly form an agreeable change from the closely-shaven lawn, for there is always something to interest one. No sooner do Snowdrops and Aconites begin to fade than Crocuses and Primroses take their places, and these again are closely followed by white and blue Violets, at present forming large patches of bloom several yards in extent. I may mention that in some flower beds which we sowed down with Grass, and from which coloured Primroses were removed, the herbage is now quite aglow with seedling Primroses that have sprung up, and even pieces of roots left in the ground must have formed plants, as the edgings of the old beds are quite discernible, by a fringe of the same colour as those which formed the margin, while variously coloured seedlings are dotted all over the freshly-laid down Grass.—J. G.

The White *Cœlogyne cristata*.—This was one of the choicest, as well as one of the most beautiful plants exhibited at the Regent's Park show last Wednesday. It measured some 2 ft. across, and was literally covered with blossoms, which, being without the yellow or lemon blotch of the typical kind, are far more chaste and beautiful. It came from the garden of Mr. Titley, at Leeds.

Loquat in Fruit.—In the gardens at Stawell House, Richmond the Japanese Loquat (*Eriobotrya japonica*) is bearing a fine crop of ripe fruit. There are about a dozen bunches, each bunch being composed of from five to ten fruits. Any person desiring to see this plant can do so by applying to Mr. W. Bowell between the hours of two and five in the afternoon.

Double-spathed Calla.—A remarkable example of duplication in the spathe of *Calla æthiopica* has been sent to us by Mr. Inglefield, of Kiddington Hall, Woodstock. In addition to the ordinary spathe there is another opposite it—half leaf, half spathe, being white on the upper surface and green on the under one. In form it somewhat resembles the ordinary leaves, being 10 in. in length and 6 in. in width. The entire specimen indicates unusual vigour.

Bougainvillea from Algiers.—Mr. Kingsmill, of Eastcote, Pinner, now in Algiers, sends us sprays of *Bougainvillea spectabilis*, now in great beauty there. Grown out of doors in such a climate, the colour is much deeper than with us under glass, although the flowering season here is midsummer.

Heavy Snowfall in Lancashire.—On Friday night, the 26th ult., we had in north-east Lancashire a heavy fall of snow in this valley at the foot of Pendle Hill. When measured, in several places it indicated a fall of 12 in.; the temperature, too, for the time of the year is also very low. On the 26th the thermometer indicated 10° of frost; on the 27th, 13°; and on the 28th, 11°, with every prospect of a continuance.—J. H. CALVERT, *Sabden*.

The Chief Secretary for Ireland has made a generous gift of 260 tons of Champion seed Potatoes to the poor of the Belmullet Union.

EDITOR'S TABLE.

A GARLAND of spring flowers from South Devon is very welcome while our London gardens look still bare, especially when it comes in the shape of fair flowers that one does not often see, as, for example, the yellow Anemone (*ranunculoides*) in company with the other better known scarlet star and blue Anemones, and Grape Hyacinths, white, and sky-blue, and purple; and the crimson Iris, earlier than it is about London; and a handsome strong flower of the delicately marked spring-flowering Iris (*stylosa*), the gold and purple Iris (*reticulata*). These, too, are in flower about London, whereas many of the others sent from earlier Devon are yet behind here. The Cretan Borage comes from Devon too, it probably being hardy enough to flower anywhere early; and so, too, the elegant *Triteleia* and the white alpine Primrose, and varieties of the Scilla, which do not as yet come so much into garden adornment as we should like to see them. The little red *S. bifolia* is here, and reminds us that this varying species, which we do not see so often as the Siberian Scilla, is a good wild garden plant for open soils and poor grassy places. The quaint and always early and hardy little yellow *Dondia*, and a beautiful bunch of some of the less common Lent Lilies complete our Devon spring treasures, which are welcome as suggesting large districts where this delightful spring life is earlier and happier than in the home counties, well suited as these are for spring gardens. Among the Narcissi we notice an old favourite—the graceful and distinct *tortuosus*, very pale throughout, and with the divisions twisted. It is a plant we used to grow with the greatest ease on the London clay, and therefore not likely to be delicate anywhere. Few, however, of the Narcissi are faulty in this respect, unless in the case of the southern kinds, few of which need concern us, as we have so many hardy ones. If only a dozen kinds of Narcissi are grown, *N. tortuosus* (sometimes called *cernuus*) should be one of them. The Heaths are also, as might be expected, fresh and fair from Devon. One of the Stars of Bethlehem (*Ornithogalum*), green, with a white margin to the divisions, is strong in the spike and singular in effect.

From Linton we have the most delicious little tufts of richly-coloured Primroses—deep-rose Primroses with colour distinct from that of any other flower, and very fine and pure, and also the delicate French-grey Primrose. How many beautiful phases of this charming colour could be shown in the pleasure ground need hardly be suggested, and we have been thinking that it might in some cases be worth while to have colonies of one colour so as to vary distinctly the effect in different places. This lovely, long enduring, and early flower of our woods has in itself the making of a flower garden considering the great variety in its forms and colours, double and single, and in what some consider a variety of it—the Oxlip. We sometimes see such varieties as Mr. Groom sends us in poor specimens in a pot at a flower show, but we have not yet seen them used in an intelligent way for garden adornment, and hope he will be able to increase them sufficiently so as to let one see the effect of the finely-coloured kinds in masses together, as well as in graceful mixtures and single plants.

* * * These notes will be devoted during the present year to flowers sent us from various parts of the country. The editor would welcome examples of rare, well grown, or interesting flowers of the open air from those who grow collections of these plants. Notes of them, and a frequent record of the flowers of the year as they succeed each other, are helpful to beginners and often valuable to others. Apart from the great variety of as yet little-known, but lovely plants which may come under notice in this way, are the lessons one may learn as regards their development on various soils, and in the very widely differing districts and climates of the United Kingdom.

The Coleus Maria.—*The Gardener's Monthly* is half filled with articles on new kinds of Coleus. One passes by an article or two and thinks oneself "through," as the Americans say, but presently they turn up again, and again. M. Lebeuf, writing to us on an horticultural show in the town of Nantes, says there were as many as twenty-seven exhibitors of new Coleus. These evidences, combined with our home efforts, point to the fact that we shall have in good time a fair supply of these interesting plants.

Notice—*Readers who possess the GARDEN ANNUAL will greatly oblige the Editor by sending him the names of any good gardens in their vicinity omitted from it, and by making any needed corrections in it. Convenient printed forms for filling up will be sent by return of post on application to the "Editor," GARDEN ANNUAL, 37, Southampton Street, Strand, W.C.*

Exchanging Wild Flowers.—In *THE GARDEN* (p. 324) you ask for rare and interesting flowers of the open air to be sent to you. I therefore send a wild Hellebore that was found on the top of one of our high hedges. None of us has ever met with it before, though for years we have found many wild treasures. Can you kindly give us its name? [*Helleborus viridis*.] Last autumn we found a tiny Orchid (*Ladies' Traces*) and the lesser Broom Rape growing on our lawn, but I greatly fear the latter is dying out, though it has been most carefully guarded. May I add what pleasure it would be if your subscribers would interchange wild flowers one with another—we have so many Ferns to offer, and there are lovely wild flowers growing in other counties that it would be a great pleasure to possess. I am most anxious to find Solomon's Seal and a yellow Ox-eyed Daisy that is indigenous to Staffordshire, also *Helleborus fœtidus*. I can detect no difference between the wild yellow Ox-eyed Daisy and the yellow French Chrysanthemum now selling in London, except that the latter perishes out-of-doors and the former stands our climate perfectly.—TOPLEY COLLIER, *Foxhams, Horrabridge, S. Devon.*

THE LIBRARY.

IMPROVED PRUNING AND TRAINING OF FRUIT TREES.*

WE have to announce the appearance of this little book, which is published at our office, and which is devoted to the explanation and practical application of the extension system as applied to fruit trees, both indoor and outdoor. As Mr Simpson has before given his views on the subject in *THE GARDEN*, we have little to say here except to announce the book and to welcome it as an attempt at real improvement in fruit culture, believing that the energy of each tree should be put, when young or old, to better uses than adding to the rubbish heap. Though we ourselves have had something to do with illustrating what might be called the fancy and artificial forms of trees, we have never advocated hard and unnatural pruning, and we have often pointed out that certain hard and close systems of pruning in use in this country were not approved of or employed in any other that we know of. It is a mistake to suppose that any particular form of training involves or implies hard pruning and mutilation, though, no doubt, a perfectly natural form as a standard in the open air will go best with extension in its fullest sense, but whether a tree is trained as a cordon, palmette, or a pyramid, the principle may be adopted of not cutting back the shoots or pinching them in to the senseless extent that has long been the rule. We have seen a very high wall perfectly covered with cordon Peaches in 3 years from the day of planting, and equally interesting instances are mentioned in this book, which we trust and believe will be helpful in the improvement of our fruit culture both indoors and out of doors.

Systems of Land Tenure in Various Countries.†

WE have received this work from the publishers, but as it is somewhat apart from our object to criticise such a book, we cannot do better than announce it, and state what it concerns: The tenure of land in Ireland; the law and custom of primogeniture; the land laws of England; the tenure of land in India; the land system of France; the Russian agrarian legislation of 1861; the agrarian legislation of Prussia during the present century. Also a report on the tenure of land in the Grand Duchy of Hesse; the land system of Belgium and Holland; farm land and land laws of the United States. The essays are written mostly by men who have paid considerable attention to the subject, such as Wren, Hoskyns, Judge Longfield, and M. de Lavalaye. It is a well-printed and carefully-edited book of over 500 pages.

The Weather of 1880 as Observed in the Neighbourhood of London. By E. Mawley, F.M.S. (London: Bemrose & Sons). Those fond of studying the weather in its various phases will find a congenial aid in this little book by the hon. sec. of the National Rose Society. Its principal contents are, the weather of the different months of the past year with tables of daily observations; the weather of the seasons, each carefully treated of under the following headings: Barometer, Temperature, Humidity, Wind, Rainfall, Sunshine, and Cloud; the weather of the year, and diagrams showing variation of the different means from their respective averages.

* "Improved Pruning and Training of Fruit Trees; or, Extension *versus* Restriction." By John Simpson, gardener to the Right Hon. the Earl of Wharncliffe, Wortley Hall, Sheffield. London: THE GARDEN OFFICE, 37, Southampton Street, Covent Garden, W.C.

† A series of essays published under the sanction of the Cobden Club. Edited by J. W. Probyn. New edition, revised and corrected. Cassell, Petter, Galpin & Co., London, Paris, and New York.

THE FLOWER GARDEN.

EVERLASTING PEAS IN THE WILD GARDEN.

THERE are few plants that illustrate better the idea of what we call the wild garden than these Everlasting Peas and their varieties. It is seldom one is seen in the ordinary type of garden at all; they do not come into any popular phase of gardening; the mixed border they are not particularly suited for, even in the few cases where it has not been done away with; while, of course, they are out of question in the parterre. Thus we deprive ourselves of one of the boldest and handsomest races of hardy plants ever introduced. Now, there is scarcely a place which does not offer pretty spots where these plants might be grown without any interference with the "trim garden" proper, and look all the better for separation from it. We have seen the forms of the common Everlasting Pea beautiful in hedgerows, or running over shrubs in a copse, or planted in a rough grassy place away from shrubs or trees. The annexed illustration represents what we once observed in a neglected shrubbery. It was a wide belt which surrounded the garden, too wide to dig and mutilate except on its margin only, which was trimmed and otherwise treated in the usual fashion. But some stiff beds of hardy plants were growing near (it was a botanical garden), and from these, when digging in autumn, the trimmings of a plant of



The large-flowered Everlasting Pea, naturalised in shrubbery (not dug).

the large-flowered Everlasting Pea had been removed and thrown into the shrubbery beyond the dug part; here they rooted, scrambled up the trees and shrubs in the way here shown, and formed for themselves one of the prettiest little colonies imaginable, growing there year after year unmolested, because the digging, for economical reasons only, had not happily gone more than 10 ft. or 12 ft. from the edge. The two main types of the more showy Everlasting Peas are thus shown to be well suited for this treatment; they are plants which everybody would admire for their hardiness, beauty, and use in a cut state, but there are some other Everlasting Peas which are still less likely to get a place in the garden proper, and these would be equally useful and beautiful in the position we mention. In fact, there is no Everlasting Pea or long and vigorous straggling Vetch which could not be thus grown in the hedgerow, or copse, or on a fence, and for effect in mass, some of the smaller-flowered Everlasting Peas would be quite as good as the larger ones. But the white-flowered forms of the common Everlasting Pea (*L. latifolius*) and its fine crimson and striped kinds are so valuable for cutting, and bear such handsome flowers, that they would be preferred, as will *L. grandiflorus*. The common forms of the Everlasting Pea are usually raised from seed, but the striped crimson and other new and choice forms will have to be increased by division. We believe the valuable white Everlasting Pea comes pretty true from

seed; most of the kinds form very strong tufts when established, and good pieces of the root are not difficult to get for the purpose in the various places above named.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Calceolaria Golden Gem.—Amongst the yellow Calceolarias none equals this. It has a dwarf, sturdy habit and produces throughout the entire season a constant succession of rich golden-yellow flowers. Although moderately hardy, the last few winters have been too severe for it, except under a good covering in pits or frames. In some localities the Calceolaria has been well nigh driven out of cultivation by a disease that suddenly attacks it. Plants that are in full flower one day are often found drooping and withered the next, the stalk just at the ground line being quite black below the bark. Since we have confined our stock to Golden Gem, however, and kept it during winter in cold frames, depending for protection on external coverings (for Calceolarias of all kinds dislike fire heat), we have scarcely had 1 per cent. of loss. We are now transplanting our plants from their winter quarters to temporary frames, furnished with about 6 in. of loam and leaf-mould spread on a hard coal-ash foundation. These will be well rooted and ready for transferring to their flowering beds or borders by the end of April, as they do best when well established before dry weather sets in. They should have all their flowers picked off until the end of May, when they will be good, bushy plants, and the beds should then be mulched with short manure or Cocoa-nut fibre. They do best in soil that is moderately stiff, and although moisture-loving plants, we seldom water the beds after they are established, one good watering at planting time being all they receive.—J. GROOM.

Planting out Callas.—Not only do Callas succeed planted out as stated by "Alpha," but they are greatly improved and strengthened by such treatment, as they make a more vigorous growth and much stronger hearts or crowns, and, as a natural result, flower with more freedom than they are capable of doing when their roots are confined the whole year through to the limited area of a pot. The way we manage ours is to pull them apart and divide them every spring, and then plant them in rows in shallow trenches, prepared something after the manner of those usually made for Celery, but less deep and not so highly manured, and in these trenches we put the plants at about 18 in. apart, after which the surface is mulched down, and a heavy watering given to settle the earth about them and give them a fresh start. During summer they have frequent soakings, as being half aquatic in their nature they will not bear a dry condition of the soil, and only do really well when they can find plenty of moisture. Early in the autumn they are taken up carefully and potted in light rich soil, and then placed in a cold frame and kept cold and frequently syringed, which prevents flagging or suffering from the disturbance the roots have undergone, and as soon as it is thought they have had time enough to become fairly established, a few of the plants are plunged or stood where they can get gentle heat, in which they soon push up bloom, when others are put in the same positions to take their place, and thus a continual succession is maintained. Any plants there may be to spare at the time of dividing and planting out are made use of for the ornamentation of the banks of the pond and small running streams, or wet positions, where if they do not flower their foliage is in character, and always pleasing to look on. Although *Calla æthiopica* is tender and very susceptible of frost, the crowns live under water if planted low enough to be just clear of the ice; and we have some that have been out in that way for years, but the part they are in is very sheltered and warm.—S. D.

Laced Polyanthus and the Frost.—This has been a trying winter for the Polyanthus grower. I never heard of losses so widely spread, many noted amateurs, as well as professional growers, having lost heavily. It is the older sorts which have failed, such as Lord Lincoln, Beauty of England, George IV., and Lancer; the more sturdy growers like Exile, President, and Cheshire Favourite are unhurt, and are plentiful enough. Exhibitors are searching anxiously about for plants to fill up gaps, but there are no spare Lincolns or Lancers to be had. I think these rare sorts have been so divided up for years as to have lost all their vigour. Every possible plant is taken off and potted late in the autumn, and they start the winter only half rooted and badly ripened, so that the frost nips them at the neck, and the moment the sunshine comes they fall away, and the crown of sickly green leaves is found lying loose from the root and dead. In this way the Yorkshire variety of Beauty of England was entirely lost last year, and some of the others are fast following. The only thing to save them is rest for a year or two until they regain vigour. The new sorts of last year, Lancashire Hero and Prince Rupert, are amazingly strong

and vigorous, like young athletes starting for their first race. Mr. Douglas thinks the early or late potting has to do with this mortality, but I think the reason is further to seek than that. We have lots of show Polyanthus, as reserve here in the open garden, as strong and vigorous as possible, and I have no doubt any one of these would be fit to compete at the coming shows if taken up and potted. It is the mismanagement of the cold frames that does the mischief. Some frames are too dry, and some too cold. The best Polyanthus grower I know of has his frames made with sod walls about 2 ft. thick all round, the back wall being about 2 ft. high, and the front wall 6 in. In such a frame or bed as this the sods keep out most of the frost, and if mats are freely used the frost can be almost entirely excluded. Another advantage of a sod frame is that it keeps up an equable moisture without the necessity of much watering, and in this way the damping off is almost entirely prevented. A Polyanthus frame should be so placed as to have the early morning sun up to about 11 o'clock, and to be in shadow the rest of the day. If Mr. Smith (p. 312) would give us a description of his method we should perhaps be able to make out the cause of his bad luck, but he may take consolation in the fact that there are many other sufferers who have to mourn their losses this season who seldom lost a plant before.—WM. BROCKBANK, *Brockhurst, Didsbury.*

Godetia Lady Albemarle.—I think it more than probable that the Godetias are destined to take high rank in the flower garden, and as time goes on we shall undoubtedly witness the introduction of new and striking forms of this very fine family of annuals. In the subject of the present notice we have a plant whose claims to general consideration can hardly be over estimated, and I scarcely think that I should be rendering it more than its due by placing it amongst the six very best annuals grown. Were it of a tender nature it would still be worthy of high praise, but it is not; on the contrary, it comes up with the greatest freedom in the open ground, is of a free, vigorous growth, forming itself into a compact bush of foliage, and covering itself with flowers of rich and brilliant hue. Like all annuals, it demands a free, fairly rich, but not too rich soil, and delights in a good depth of mellow earth, where the roots can ramble freely and pump up moisture in plenty when the fierce heat of summer arrives. Accorded these conditions, this Godetia will prove a fine addition and a striking ornament to any garden, and will produce its large, gaily-coloured flowers for a considerable period. I may add that, sown in pots in the autumn and wintered in a cold frame, it makes a good show in the conservatory in the early spring.—J. CORNHILL.

The Common Corn Marigold proves to be a very beautiful winter flower in the greenhouse. In early winter some very fine specimens were sent us from Ireland, with a request to name them, the writer stating that the seeds had been gathered in a field in the county of Waterford, and afterwards grown in the greenhouse. We saw the other day some blooms in London that had been a fortnight in the same position. They had been grown by Dr. Parsons at Frome in his greenhouse. Treated thus, there is a bright look about the flower in winter which makes it quite as valuable in its way as the yellow Paris Daisy, from which it is quite distinct in appearance, having a more compact and solid outline. In the present taste for these Daisy-like flowers, it may be well to know that this showy ornament in our fields in autumn may be made to enliven the dull months in the greenhouse. Plants well grown in the open air in pots, and not allowed to flower till wanted, and then transferred in autumn to a sunny greenhouse, would give an excellent result.—J. H.

Crocus Buds not Coming to Perfection.—In reply to "Girofle" (p. 272), permit me to say that for several years I have grown a choice collection of Crocuses in pots with great success, and have at the present time a lot in 5-in. pots, which are covered with a profusion of fine blooms. My mode of culture is to place seven bulbs in a 5-in. pot, in a mixture of loam, sand, and a little manure from a spent Mushroom bed, taking particular care to use clean pots and to have good drainage, and in potting to fill the pots nearly level with soil, with a sprinkle of sharp sand on the surface, leaving very little room for water. After being potted, they are placed in a cold frame and covered with about 3 in. of ashes; when they have grown about 1 in. above the soil they are removed to a cold, dry frame, where they are placed near the glass and allowed plenty of air, and only watered when really dry, and then very carefully through a fine rose. They are grown on in this way until the buds are ready to open, when they are removed to the conservatory, and with the help of a little sunshine they make a very grand show.—W. B. R.

Lewisia rediviva.—In reply to "Delta" (p. 314), allow me to say that I believe this plant should be grown in sunshine and not in shade, or it cannot be flowered. The plant itself should be kept high and dry, but the roots should have plenty of moisture; a crevice in

a rockery is the best situation for it. If grown in pots the plants should be on broken stones, and the roots in light sandy loam with peat. Possibly, "Delta" thought his plant dead when it apparently died away after flowering. It shrivels up and becomes a withered, twisted mass, like so many bits of string, but this is the nature of the plant, and hence its name, as it came to life again after a long tarryance in the Kew Herbarium. I have grown and flowered the same plant for two years, but the third season it died away and did not revive; and so I have now got a large lot of them from America, and they seem to be lively and well. When in bloom they are most interesting and very pretty, the flower being rather like that of a single pink Aster, some 2 in. to 3 in. across, whilst the plant itself is not 1 in. in bulk and 2 in. in height.—BROCKHURST, *Didsbury.*

—Having had fair success with this so-called "miffy" little gem, I will give my mode of treating it. The first plant of it I ever flowered was grown in a pot in a cool frame facing the north, and shaded during the hottest part of the day by some overhanging boughs of a Lombardy Poplar; here it produced flowers from 1½ in. to 2 in. across. It grew in peaty soil, and was watered rather sparingly. I have since flowered it in peat and loam, which I think it likes best, with a plentiful supply of grit. Like most plants of this Order, and especially those which, like the one in question, have both succulent foliage and tap roots, I should strongly advise withholding a too plentiful supply of water. I am also of opinion that if "Delta" will treat his plants as though he had some choice Echeveria to deal with, that is, use loam and grit for soil, and keep them comparatively dry, success may be the result. If, however, his stock of plants will admit of it, I should advise their being tried in every imaginable way and the results noted. I have also flowered another species called *L. brachycalyx*, which I believe is rarer than *L. rediviva*; the flowers, which are of the colour of *L. rediviva*, are much smaller, and are borne on short umbels.—E. JENKINS.

Spring Flowers.—We have so far had a splendid time for our early spring flowers, though many, hard checked by the frosts, are later in blooming this year. Primroses and Polyanthus are, indeed, gay and blooming with unusual vigour; Violas and Pansies are bursting freely; the charming *Myosotis dissitiflora* is very strong and full of bloom; Scarlet Anemones are making a brilliant display, and many of the Coronaria family are throwing up flowers of various hues; Crocuses, Snowdrops, Scillas, &c., are past, but have bloomed finely; whilst Daffodils and other early Narcissi are gay successors; *Primula purpurea*, rosea, marginata, and *Casimieriana* are all in bloom; and, indeed, many things that help to make gay and beautiful the garden borders and rock-work in these early spring months.—A. D.

Tussilago fragrans.—At Raystead, the residence of the late Mr. W. Wilson Saunders, this plant grew and flowered profusely. It stood in two different positions, where it succeeded perfectly. The original spot was under the trees of a border facing north, where it spread rapidly, and perfumed the whole place. It was afterwards tried on a rockwork, also facing north, but fully exposed to the sun. In that position it succeeded equally well. The soil was ordinary garden soil in both positions. I have heard that this plant does not flower at Chiswick. In a garden adjoining my own it faces the east, and has been in full flower this winter.—S. S., *Worthing.*

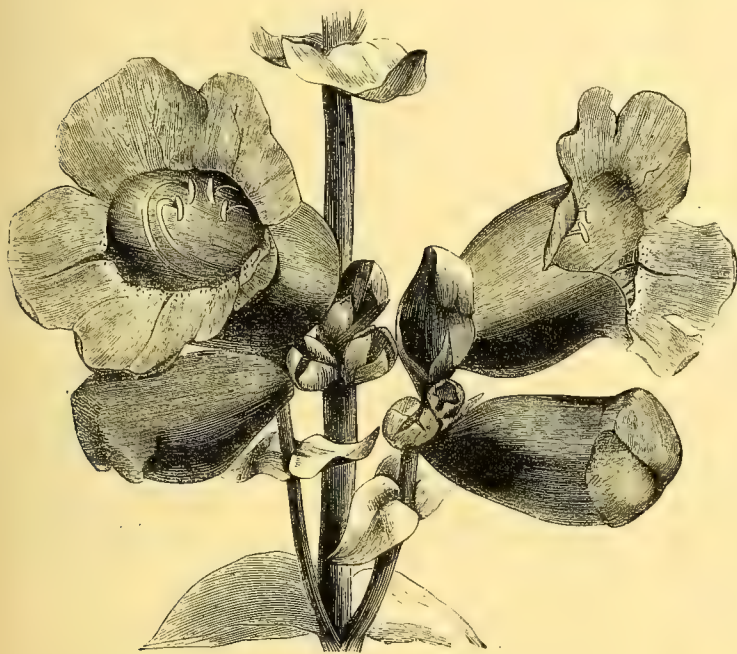
Omphalodes verna.—This perennial Forget-me-not is just now very beautiful; indeed, it develops a shade of blue that is not excelled for delicacy by that of any other flower. I find it blooms most freely where the plants are a little starved, but perhaps the warm exposed situation is more productive of bloom than of leaves. So hardy and so rapid in expansion is it, that one wonders not to find it everywhere, and yet there are thousands of gardens where Orchids and stove plants are abundant which have never seen this pretty little *Omphalodes*.—A. D.

The Cliveden Blue Pansy.—This is still one of the first to produce a good show of its beautiful blossoms, for while the ordinary run of show or florists' Pansies are only just awakening from their winter's slumbers, this free-flowering variety is covered with blossoms. I find old plants extremely useful with which to drape the edges of vases filled with early spring flowers and for spring flower beds; in fact, its season is the spring, for with the heat of summer it loses its lovely blue shade and becomes a pale lavender or grey.—J. G., *Linton.*

Aucuba-leaved Daisies.—These have stood well here in the open through the past three severe winters, and now are as bright and vigorous as ever; the chief enemy to Daisies of all kinds, I find, to be rain followed immediately by sharp frosts. It is well, therefore, to keep the surface soil about the plants well stirred if it is not naturally porous. Nearly all kinds of Daisies throw variegated foliage more or less, but the large double red has given us the most robust and enduring form.—A. D.

PENTSTEMON COBÆA.

ONE of the showiest and most beautiful of the numerous species of *Pentstemon* in cultivation is *P. Cobæa*, though the true plant has become extremely rare, and is seldom met with in a healthy condition. Last year we found it in Mr. Joad's collection at Oakfield, Wimbledon Park, and from a plant there prepared the accompanying illustration. Several other, but very inferior kinds, such as *P. digitalis*, are sold for it, but it may be readily distinguished from all others by its remarkably large flowers, which are widely inflated in the tube, which is creamy white tinged with delicate purple, while the widely-spreading lobes of the limb are beautifully veined with pink and blotched with yellow. It grows about 1 yd. high when well managed, and the whole plant is covered with a soft glandular down. The root leaves are broadly ovate, while those of the stem are heart-shaped. The flowers are produced in a tall leafy panicle in a whorl-like manner. Being a native of Texas, it is not so hardy even as the Californian species, yet in sheltered dry soil it may be grown to perfection, and with a little care in the way of protection during

Flowers of *Pentstemon Cobæa*.

hard winters it is a true perennial, and will last for years. Propagation may be readily effected by means of cuttings or seeds; the former must be guarded against damp, and therefore do best in pots in a dry frame; afterwards they should be carefully transplanted. Such a handsome hardy flower as this will, we hope, soon become more widely known than it now is. W. G.

ANNUALS FOR BEDDING.

ANNUALS are generally avoided for bedding on account of their being evanescent, and yet here some are so showy as to be almost indispensable in the summer garden, where anything like a grand display of bloom is expected to be kept up. The most brilliant and durable of any are the *Zinnias*, which have been so improved of late years as to render them perfect in form, and as double as a *Chrysanthemum* or *Dahlia*, while in colour they present almost every shade, and when seen in masses such as a large circular bed affords they are quite dazzling. Not only are they exceedingly effective when grown in this way, but they are likewise suitable for borders, in which they look best planted triangularly in patches of three at about 9 in. apart, and as they have stiff stems, they stand well erect without any support. Being tender in the young state, *Zinnias* should not be sown till towards the end of April, as then they can be pricked out anywhere under glass, and kept there till the weather

will admit of their being transferred to the open ground, which may generally be done by the end of May or first week in June. The best way to manage them is to sow the seed in finely-sifted leaf-mould in pans or boxes, which should then be placed in gentle heat till it germinates, and as soon as the plants are large enough to handle they ought at once to be pricked off in light soil in a frame and kept close for a day or two to give them a start, when air will be required to prevent them from drawing. If the soil in the bed in which they are to be planted is at all poor, it should be trenched and heavily manured, as *Zinnias*, like most annuals, are fond of good living, and if they can send their roots deep down they stand dry weather better, and require little assistance by way of watering, which they would do in less suitable soil. In planting it is necessary to give the plants not less than 12 in. or 15 in. between the rows, as they are strong-growing and branch out freely from the base and spread over a good deal of ground.

Asters.—Next to *Zinnias* in point of merit are *Asters*, which, although not so showy and lasting, are very beautiful, especially the French *Pæony*-flowered kinds, which are not so stiff and formal looking as the German, but have more the character of a *Chrysanthemum*, with incurved petals and blooms nearly globular in shape, with the centres well filled. To grow these, or any other of the annual *Asters*, really well they must have a good dressing of rotten manure worked into the land before planting, and the next point to ensure success is to get good stocky plants. This may easily be done by sowing the seed thinly under hand-lights about the first week in April, and giving plenty of air during the day as soon as the young plants make their appearance.

Stocks, which are universal favourites, must not be overlooked, but as they transplant badly, the best way is to sow the seed in rows or patches in the beds where they are to grow, and then thin out; as many, however, come single, it is always advisable to leave them somewhat thick for a time, till they show bloom buds, when the singles can at once be pulled out, and a fine display consisting all of double flowers secured. The scarlet and white *Intermediate* make a fine display and last long, but for variety of colour, the *Ten-week Stocks* are best, and they are very dwarf and compact. These may be grown at about 6 in. apart, and the *Intermediate* sorts at 9 in. to 1 ft., according to the position they occupy and the kind of soil they are in. *Brompton's* or *Queen's* are very strong growers, and are remarkably fine for borders. If sown about July or August, they flower early the following spring, and are then of great value for cutting from.

Godetias are likewise very desirable annuals to grow, as they are both large and showy, the blooms being nearly the size of a small cup, and the petals of a rich shining satiny texture, with colours varied and brilliant. The best are *G. Whitneyi* and *G. Lady Albemarle*, and a white kind named *The Bride*. These, mixed in a bed, produce a very striking effect. Being very hardy, seed may be sown any time now out of doors, and if in patches or borders they should be thinned out by-and-by to two or three plants in a place.

Besides being suitable for the above-named purposes, *Godetias* make fine pot plants for the embellishment of greenhouses or conservatories, for which purpose they should be sown in autumn, and wintered in any cold frames.

The Salpiglossis is another annual that I would specially recommend. It has large Lily-like flowers, most beautifully marked and veined, but as it is tender seed should not be sown out of doors till the middle of May, when the soil being a little warm, it germinates freely. To grow the *Salpiglossis* well the soil should be light, and the site sunny and sheltered, as, being tall and slender in stem, it will not bear wind without getting knocked and broken about.

S. D.

Erythrina herbacea.—This, which is now a very scarce plant, resembles a dwarf form of the *E. Crista-galli*, which years ago was as well grown as it is now, though I do not recollect seeing it out-of-doors. The *E. herbacea* was also usually found in the stove, and even then I don't know of anything more really beautiful; but it must have fallen into oblivion, for I have not seen it in catalogues for many years, although it is mentioned by P. Miller in his dictionary, dated 1762, but I have not seen it since 1830. It was, as I have said, of dwarfer growth than *E. Crista-galli*, while its flower-spike was equally as long, and it would be regarded now-a-days as an admirable plant.—AN OLD GARDENER.

SEASONABLE WORK.

Pleasure Grounds.—The month just passed away having been favourable, the performance of many operations at one time in arrear will have been brought to a close; but at this busy season, when every day brings its own work, the active mind will always find more than enough for busy hands to perform. The lifting, re-arrangement, and planting of all deciduous trees should be finished before the sap begins to move, and to save watering through the spring and early summer months; large specimens will be the better for a good ramming and mulching before the recently disturbed earth loses its moisture. In order to maintain a neat appearance in the dressed grounds, the pruning of evergreens (whose present condition in this neighbourhood sadly belies the name) is commenced by many people in March, preparatory to pointing up the surface soil, dressing the edgings, sweeping and rolling as an important preliminary to mowing; but where severely scathed by the frost, a little delay in the pruning will be advisable, as dry, harsh winds often take out moisture which would otherwise feed and force forward the incipient buds. With us *Arbutus*, *Bays*, *Laurustinus*, *Eunymus*, *Escallonia*, *Chinese* and *Japanese Privet*, *Clethras*, *Ilex dipyrena*, *Ilex furcata*, and *Ilex cornuta* will have to be pruned back or cut down to the ground; but we shall put up with an untidy appearance for a time in preference to premature pruning, a proceeding which led to the total destruction of many valuable shrubs after the severe winter of 1860-61. In flower gardens, where every vestige of herbage is cut and taken away, some kind of stimulating dressing should be applied to the turf annually, the quantity and quality being regulated by the nature of the plant and the depth of the soil. For newly-seeded lawns bone dust, fresh loam, or thoroughly rotted manure may be used with great advantage, while for fining the quality of Grass on rich soils a sowing of soot, finely sifted ashes, or burnt earth will be found most suitable. The constant mowing of lawns will now require regular attention, and, assuming that all the machines are in working order, a thorough sweeping and rolling will greatly facilitate and improve the appearance of the work, while it saves the newly-set knives from strain or injury at the outset. Get all edgings pared or clipped, remove weeds, and face the walks with new gravel where requisite. Where salt is used for the destruction of weeds a supply should be in store, ready for sowing in dry weather as soon as the seeds which dropped last autumn have germinated.

Flower Garden.—By this time the stock of tender plants will be struck, and many of them ready for hardening off, an operation which not unfrequently taxes the ingenuity of hundreds of gardeners to a greater extent than many employers imagine. So long as they can be kept in forcing houses all goes well, but when the time comes for removing them to cooler quarters, places in which pits and frames are limited or occupied by forced vegetables are but too often disfigured by rough and ready shelters, which rapidly complete the process to an extent from which it takes them half the season to recover. The principal point is the gradual inuring of tender plants to exposure without producing a check, and as this cannot be attained without an undance of pit room well-glazed structures of this kind should always be provided as the first essential to good flower gardening. With erections of this kind the manufacture of bedding plants by the thousand is reduced to a simple system, but without them the substitution of a greater number of hardy plants will economise time and give better results. Where hardy plants in a small state, such as *Retinosporas*, *Thujopsis dolabrata*, *Cryptomeria Veitchi*, *Thuja*s, and *Aralias*, are used for filling up the beds in the autumn, and spring flowering plants, including *Snowdrops*, *Aconites*, *Crocuses*, *Violas*, *Hepaticas*, and others are brought into use for edgings, one always feels sorry to break up so pleasing an arrangement at an earlier date than would be otherwise necessary in order to save the shrubs from injury, which often follows late removal; but if firmly potted in 6-in. pots at the outset, and plunged in the beds the first year, the roots would form compact balls, when the pots might be dispensed with and removal would be quite safe up to midsummer, care being taken that the balls are thoroughly soaked preparatory to transplanting in the reserve ground.

Herbaceous Borders.—The majority of the plants having pushed through the mulching, the pointing up, and general dressing of the beds must be proceeded with, and if any of the more tender kinds have succumbed to the severe winter, all vacancies must be made up either from the reserve ground, cold pits, or by division of roots which are becoming too large. In all cases a good station is essential, and fresh compost, free from wireworm, should be used for planting. By this time *Phloxes*, *Pentstemons*, *Carnations*, *Primulas*, and old plants of *Hollyhocks* wintered in pots in cold pits, will have been hardened off, and the weather continuing favourable, planting may be proceeded with, in order to make room for *Auriculas*, *Carnations*, tender *Primulas*, and other things recently shifted into their blooming pots. The planting should be performed when the soil is in good working order, and small sprays of *Spruce* or *Yew* shelter from bright sun and cutting winds. On warm soils, the planting of *Gladioli*s will be well advanced, but in cold, damp localities the first half of April is quite early enough. Plant out pots of *Sweet Peas*, *Stocks*, and *Wallflowers* in a warm corner for early sowing, and sow the former at regular intervals for succession.

W. COLEMAN.

ONE of the Sydney illustrated papers, *Town and Country*, contains a beautiful engraving of the Botanic Gardens at Melbourne, which now appear to be in a very healthy state under the management of Mr. Guilfoyle. The same paper contains an interesting account of the garden.

THE INDOOR GARDEN.

CAMELLIAS AND LIME-WATER.

"READER" asks if he may safely get rid of worms out of his *Camellia*-pots by the use of lime-water. Certainly not. Nothing could well be more injurious. Neither is it needful; there are at least two other equally simple, and yet more efficient remedies at hand. The one is soot-water, the other water at a temperature of 90°. The soot-water is almost as distasteful to worms as lime-water. The worms have no liking for bitters, though, fortunately the *Camellias* have. The soot not only draws out the former, but stimulates the latter. Hardly any kind of manure is so useful in imparting that dark gloss of colour to the leaves so much desired by *Camellia* growers as an occasional top-dressing with soot, or drenching with pretty strong soot-water. This is still more efficient in drawing out the worms quickly if applied at a temperature of 85° to 90° than when given cold. Pure water, or house-sewage of moderate strength, at a temperature of 90° also starts worms out of their lairs as if they had received an electric shock. Some one should follow the waterer and pick them up at once. If they do not quickly come to the surface repeat the dose. If the worms still refuse to come—which is seldom—take a short stick and agitate the ball or mass of earth through the hole in the base of the pot. The worms, taking this for a mole on their track, mostly bound to the surface by the shortest route, and have only to be picked and destroyed. In the most trying cases in which eel worms are concerned, which have the awkward habit of retreating to the centre of the ball instead of to its surface when disturbed, a hot bath for an hour in water ranging from 80° to 85° will expel or kill them. For the future "Reader" should either leave out leaf-mould or bake it on the top of his furnace before use; but peat of average quality and a fair amount of sand will grow capital *Camellias*, and is better without the addition of leaf-mould. It may be needful as a rule to add leaf-mould to loam where *Camellias* have to be grown in that only, but its addition to peat is no improvement, but the reverse. *Camellias* root freely in fibry peat, and as to food, nothing is easier than to give them abundance of that in their water.

D. T. FISH.

Forcing Crocuses.—Mr. D. T. Fish (p. 312) says, "Can 'Girofle' or any of your readers give their experience on the forcing of *Crocuses* and *Snowdrops*, or explain why it is that, as a rule, neither are forced well?" I may say that the last part of the sentence just quoted has been answered by himself where he states that the failures, with which growers of *Crocus* corms are too familiar, arise from drought. My experience in growing *Crocuses* has not been so large as that of Mr. Fish, but I grow a good many annually in pots and pans, which, as a rule, with scarcely an exception, have proved very satisfactory; and more so than is the case with *Hyacinths*, for among the latter a few generally put forth weak flower-stalks, while the *Crocuses* rarely disappoint me. I do not high force, so to speak, these corms, as I have not the means at my disposal; but as far as I am able to judge they may be had quite as early as *Hyacinths* or *Tulips*, and nothing can excel their beauty when from six to eight good corms are placed in 4½-in. or 6-in. pots. I find that they succeed best when covered with a layer of Moss, as then the soil obtains the moisture in which the *Crocus* so much delights. It is, therefore, my conviction that more failures are caused by drought than by any other cause. I may add that the pots containing the corms should be plunged in ashes or Cocoa-nut refuse.—J. C. T.

The Spring Bitter Vetch Forced.—Among plants forced into flower at this season the Order *Leguminosæ* is but slightly represented, as far as numbers are concerned, but the contrary holds good as regards beauty, for what can surpass in this respect the *Spring Bitter Vetch* (*Orobis vernus*) when assisted with a little heat to bring out its flowers? The latter are so beautiful in their ever-changing shades of blue, purple, red, and green, all harmoniously blended, that no establishment in which plants are forced should be without it.—H. P.

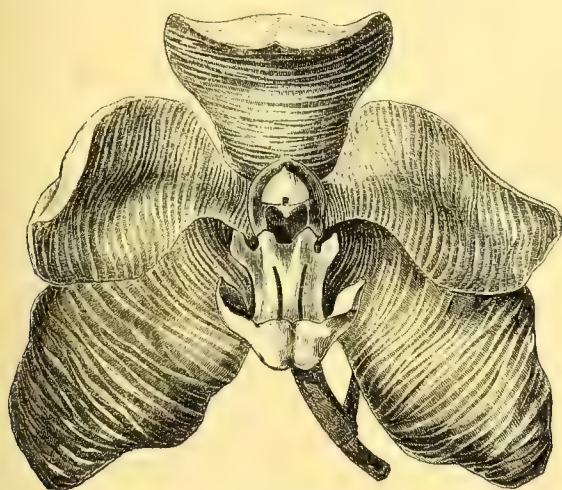
Cinerarias from Seed v. Cuttings.—During the past few years the *Cineraria*, in common with many other flowers grown for decorative purposes, has been so greatly improved, that a good strain may be relied on to bring every plant of good average quality and in an endless variety of shades and markings; in fact, when grown in quantity for decoration, seedlings may be said to be the rule and named varieties the exception, although there are many beautiful named varieties well worthy of special culture by those who make the *Cineraria* a speciality. We grow for use, and have now beautiful dwarf-branched plants from seed sown last spring of *Veitch's* *Selected* and *Covent Garden* strain, and for the purpose no one

could wish for better. For the earliest flowering supply, sow at once, pot off, and grow in cold frames; shade from bright sunshine and keep clean by fumigating. A compost of turfy loam, leaf-mould, or thoroughly decayed manure, and sand, with good drainage, will grow them to perfection; and very fine plants may be grown in 6-in. or 7-in. pots by keeping them well supplied with weak liquid manure when coming into bloom. They should never be allowed to get quite dry, and a moist atmosphere is the best remedy for keeping them clean and healthy. Close to the glass on front shelves of cool Vineries or Peach houses is a good position in winter, where they will only get fire-heat enough to exclude frost; the lower leaves will then quite cover the pot, and the head of bloom will be almost circular from the side shoots that branch out from the main stem. They should be shaded from bright sunshine, and are invaluable for indoor or conservatory decoration.—J. GROOM, *Linton*.

ORCHIDS.

VANDA CATHCARTI.

THIS is one of the most interesting of Orchids, though not, unfortunately, the most common. It has been said that in many respects it resembles *Renanthera coccinea*, which it does, and therefore some may be led to treat it in a similar way, and doubtless in some instances with success. I, however, manage it somewhat differently. I find it to grow freely and to produce its



Vanda Cathcarti.

beautiful chocolate-barred flowers annually by being always kept in a warm, shady position and during the growing season allowed abundance of water, keeping it only moderately dry during its season of rest. By this mode of treatment three or four spikes can be produced, with five or six flowers on each, even in the case of a moderate-sized plant.

CHARLES GREEN.

Pendell Court, Bletchingley.

[Mr. Green exhibited the other day at South Kensington a fine raceme of this *Vanda*, from which the flower represented in the annexed illustration was selected.]

SUITABLE HOUSES FOR ORCHIDS.

It seems an anomaly, yet nevertheless it is true, that although Orchids are far the most costly plants in cultivation, they often are found occupying houses of a much worse description than are devoted to plants of an ordinary character, that cost little to begin with, and can be propagated to an unlimited extent. This may be accounted for in more ways than one; even those who are comparatively little experienced in plant cultivation know that if they place soft, quick-growing plants in dark, unsuitable structures, instead of satisfactory progress the growth made is sure to be of a weak, thin description, such as not to permit of their ever assuming their true character, or of producing an adequate amount of bloom; consequently, if quick-growing plants of the above description are placed under such unfavourable conditions, it is generally understood what the result will be, and it is thus avoided.

The conditions under which the majority of Orchids are found growing in a state of nature, with more or less shade, has too often led to the mistaken idea that any kind of dark house would answer for them. Hence it is that these plants are very frequently consigned to structures that few things except some of the commonest Ferns would do in. This kind of mistake is further made possible by the slow growth which Orchids make, not showing the effects of being located in an unsuitable house so quickly, or even so markedly as plants that would at once give evidence of the adverse conditions they were subjected to; therefore, as I have already said, the attempt is often made to grow numbers of these valuable plants in houses where even the most skilful cultivator would fail to keep them in the continued healthy thriving state desirable.

Deceptive Growth in Unsuitable Houses.—In houses where light—one of the first essentials indispensable to the well-being of these, as it is of most other plants—is not present in sufficient quantity, the growth for a time is generally deceptive; as, when accompanied with considerable artificial warmth, a deficiency of light usually for the time being causes greater development of the leaves, with an equally greater lengthening of the pseudo-bulbs, than would occur in houses that gave enough light, but the result is that in a few years this over-exuberant growth exhausts itself, the plants ultimately succumbing. This, as a matter of course, is less apparent with those species that do not require more warmth and atmospheric moisture than consistent with a considerable quantity of air being given them almost continuously, as when the nature of the plants is such as to warrant a free admission of air, this tends considerably to counteract the ill effects of insufficient light by helping to give solidity to the growth. Light and air are the two elements—without a sufficiency of which, during the time growth is being formed, it is impossible that plants can acquire the solidity in their different parts essential to a healthy existence. In a state of nature, light and air are ever present in the quantities required, and if under cultivation the supply of these is short, nothing that can be done in other ways will make up for the deficiency, and there can be little doubt that the greater number of Orchids that fail to continue growing in the way they usually do a few years after being imported fall off through want of solidity in the whole substance of their different parts, leaves, stems, and roots. Insufficiency in this essential is followed by spot—that fatal disease so dreaded by Orchid growers.

Light Houses still more Essential for Warm Species.

—With those species that need a high temperature with the ever accompanying moist condition of the atmosphere, it is not possible to give them air in the amount they receive when growing naturally, but we can to a considerable extent make up for this deficiency by giving them all the light they will bear, for, with plants grown under glass, light has a similar correcting influence over a deficiency of air to that which the presence of plenty of air has over an insufficiency of light. The influence that a thoroughly light house, which in addition is also low enough to admit of the plants being kept near the roof, has upon Orchids is so apparent to any one who takes the trouble to note the immense difference in strength and vigour in a collection grown under such conditions as compared with others where the house gives them insufficient light, that it seems inconceivable that plants of such value should ever be consigned to the wretchedly unsuitable places they are so often seen in. I should suppose there are few engaged in Orchid cultivation who have not some time or other had an opportunity of noticing the marked improvement which a couple of years in a well adapted light house has upon plants that have previously been kept in an indifferent structure—the transformation from long, thin, soft leaves, borne by over-lengthened stems and bulbs, to the short, thick, leathery foliage, surmounting bulbs thick and plump, which are not only indicative of present healthy vigour, but give promise of their keeping on increasing in size and strength for an indefinite time, such as Orchids, more than most cultivated plants, are formed by Nature in a way that admits of, for with each succeeding season's growth they may be said to begin anew their lifetime, as in a state of nature, or under cultivation when the conditions are favourable, the slow decay of the parts formed in years past goes on without the least weakening influence or shortening the term of the plant's existence, the top ramifying and gaining strength faster than the opposite extremity decays.

Natural Long Existence of Orchids.—Orchids, in common with most plants of slow growth, are formed by Nature to live long, and there is enough evidence that even under the shortcomings inseparable from the highly artificial conditions attending their cultivation as compared with what they get in their native countries, that they will and do go on thriving for an indefinite time. Take, for example, the original dark-leaved form of *Cattleya labiata*, that is to be found often represented by several examples in almost every collection in the country, and frequently in places where only a few Orchids are present; yet it is generally understood that there never was but one importation of this fine plant, and that now over sixty years ago. In naming this *Cattleya* as an instance of the ability in Orchids to go on thriving for time unlimited in a cultivated state, I am by no means selecting one of a genus that presents more than ordinary inclination to conform to the conditions of cultivation, for the *Cattleyas* are found by many growers to be more difficult to keep in health than most others of the Orchid family. I have no doubt there are many more Orchids besides this *Cattleya* still in cultivation that have sprung from importations equally long since, and that are in an equally healthy condition, and show no more signs than it does of wearing out, only there is not similar proof of their descent.

Light Houses now Adopted for Plants Generally.

—The men who cultivated plants and flowers for the London market thirty years ago used to grow them in any kind of structure—lean-to's with light-excluding, high back walls, often more or less shading each other, or under the darkening influence of other objects. Now this is changed. Those who grow even the commonest plants, that will not fetch more than 1s. or 1s. 6d. apiece, if they aim to cultivate them in a way that will command the top price, select an open field for their houses, where there is not a tree, a wall, or anything that will shut out a single ray of light; the houses, although often rough, are composed of as much glass and as little wood as they can be made to hold together with, and the plants almost invariably are stood with their heads nearly touching the roof. When the necessity becomes generally admitted of having Orchid houses as light as those which the market-plant growers find it to their interest to use, there will then be fewer instances of the deceptive growth in Orchids, where they flourish for a few years after being imported and then die out. The comparatively few species that like to be grown darker can always be accommodated.

T. BAINES.

Orchids in Flower at York.—The display of *Dendrobium Devonianum*, now in bloom in the nurseries of Messrs. Backhouse & Son, York, is beautiful beyond description. One of the specimens has enormous stems, 3 ft. or even 4 ft. long, and forms a cylindrical mass of bloom over 30 in. in length on one stem. Another plant of it, with stems nearly 3 ft. long, has eleven dense pendent plumes, forming a complete sheet or curtain of flower, almost obliterating the dense mass of older stems. Some of the varieties have unusually large flowers, and very rich in colour. The great specimen of *Dendrobium densiflorum* promises to produce a gorgeous display shortly. Large masses of *Cattleya Skinneri* are just ready to open. One of these has seventy or eighty stems; a single spike bears nine flowers, other spikes seven and eight flowers each.

French Blinds for Shading.—"F. M. B." may without hesitation employ the French lath blinds for shading his glass structures; in fact, I know of no kind of shading that I should recommend in preference to them. They are neat, and although somewhat costly at first (the only objection that can be urged against them), they last a long time, an average lifetime, indeed, if at all well cared for; and if properly fixed are easy to manage, much more so than the ordinary roller with its too often torn, dirty canvas concomitant. As to the volume of light admitted, your correspondent may be quite easy on that score, the laths being far enough apart to admit of the direct entry of the sun's rays, which are too much broken in force, however, to scorch, and which as the sun marches onwards, flit, as it were, from leaf to leaf. These blinds may be had of Messrs. Richardson, of Darlington, who import them direct from France, and supply them of any desired dimensions, with all necessary appurtenances. Let me advise all intending to adopt this system of shading to fix the blinds in houses some 8 ft. wide, with two pulleys to each house, the advantages of which consist in the greater ease with which the blinds are pulled up and the ability to shade any portion of the structure without having to shade the whole of it.—JOHN CORNHILL.

THE ROSE GARDEN.

THE TIME TO PRUNE ROSES.

THIS is a knotty question, and as yet far from settled. Good reasons may in fact be given for pruning Roses in October or November, or March or April. At first sight, and from the side of the most vigour and the finest buds, early pruning is by far the more reasonable. As soon as the leaves fall Roses might be pruned to advantage. For though the wood may be on the whole ripe, the buds are by no means full. During the whole winter the process of bud filling proceeds. It is therefore certain that the fewer buds on the plant, that is, the earlier and the more severely it is pruned, the fuller the buds must become, and they do. This is not merely a matter of theory, but of fact. One can see the filling up going on under their eyes daily, and this filling proceeds from below, not above. After the fall of the leaf no new material can be added to the buds from the heads of the Roses. Consequently it follows that the early pruner gets more vital growing or flowering force into the buds than the late pruner. Nor is this the only advantage. The early pruner's cuts heal rapidly, the later pruner's more slowly; sometimes not at all. This is a point of great moment to the future health of Rose trees. Probably not a few of the many deaths with which we are all becoming so familiar originate in the weakness induced by late pruning. The loss of sap by bleeding seldom lasts long in the Rose. But the plants lose a great deal while it does last, and wounds are left behind that probably may prove inroads to disease, and afford by their tenderness a vantage ground for the frost. On the contrary, prune Roses as early as possible in mild weather, and hardly is the wound made than it begins to heal. The sap is also thick at that period and stage of growth, and no exudation of fluid takes place; hence the rains and dews soon glide over the wounds instead of being arrested by and adhering to them, as is too often the case when pruning is deferred till the spring. Autumnal pruning also favours early blooming—this of necessity from the buds being so much more fully filled. Now early blooming in itself is a good thing. Everyone with a garden loves Roses so much that he is anxious to have a sight of them as soon as may be, unless, indeed, he be an exhibitor, rather than a grower, who has to time his blooms for late shows. It may be well to add here that these remarks are not made for exhibitors. They learn by experience when to prune almost every particular Rose, so as to have it in greatest perfection on a given day. Such special knowledge is given or acquired by very few, and those who possess and profit by it mostly keep it. But the generality of Rose growers desire to see their favourites open as soon as possible, and should therefore prune their Roses in October or November. Finally, in favour of autumnal or early winter pruning, it may with certainty be affirmed that early pruning favours size and also symmetry of blossom. The former is a matter of course, but the cause of the latter is less obvious. May it not arise from the fact that Nature's best works are generally her most leisurely? The picturesque gnarled Oak, for example, is the gradual outgrowth of centuries of laborious growth; the Cabbage-headed Sycamore is but an upstart of yesterday. It seems so in degree with the slowly built-up buds and blooms of autumn-pruned Roses, and the hurried productions that are developed by express on the heels of the knife in the spring. But—how troublesome these buts are—to the question: Do you thus condemn the spring pruning of Roses? My answer is, No; for only thus can many of our warmest-blooded varieties be held in check, so as to have a fair chance of any blooms at all. True, by allowing Teas and others of the more excitable Hybrid Perpetuals to grow on into shoots before pruning in the spring, one loses force and time; the first is a sacrifice to be regretted, the latter, in the case of many Roses, is a boon to be thankful for; for the one fault that so many Roses have beyond all others is that they lose their heads if the sun shines out warmly for only an hour or two in March. The cultivator has thus to elect between a choice of evils—cut their heads off with his knife or allow the frost to do it for him. As a rule, the first course is the safer and the more philosophical. Cut back to within a few buds of the tree there is a great loss of material, as well as vital force, that is, the power of making more such material as has just been removed. That, however, cannot be helped; and the base buds seldom ever make pretence to produce wood or bloom equal to that cut off. But these yield shoots that flower, which the

weather would not suffer the earlier ones to do, and this is about the sum total of all that can be urged in favour of late spring pruning.

In practice either is best, according to circumstances and conditions; and very often neither absolutely is best, but a sort of compromise between the two. For example, all Roses should be overhauled and partially, if not wholly, pruned in the late autumn—that is, all weakly and worthless shoots should be cut away close to the ground, or the base of the scion in grafted plants. The earlier this can be done the better. By such prunings the strength of the plant is often diverted into new channels, just as the current of a rivulet may be changed by the merest accident. I may mention that the finest shoots for other years often spring up from the base buds of these worthless weaklings, and the sooner the weakly branches are cut away the stronger will the base buds shoot up; and there is no reason why such superfluous boughs should not be cut away at the earliest possible opportunity. This character of pruning might often be carried much further than it is at present, and as Roses get back to earth again and grow on their own roots, a good deal may be done to force them to renew their growth every year by simply cutting back hard every weakly, exhausted shoot. All such Roses, too, as the old Cabbage, Provence, Moss, French, Ayrshire, and most of the common Noisette and climbing Roses should be pruned in the autumn. Of the others part may be pruned, while the final cutting back of the flowering shoots to their lowest limits might be left till March, or even later in backward seasons.

This year a great many of our Roses have been already pruned to death, and others with alarming severity, by the frost. The chief pruning needed, and we are after it now, is to complete the work of the frost by cutting off the wood it has already destroyed, and pruning off any of its leavings, which are all too scarce and few this season. In many cases, too, in which the outside of the wood is fair to look upon, the inside and the pith are black and decomposed, a sure sign that the shoots are already as good as dead. Those who thrust a wisp of straw or a handful of common bracken into the heads of their standards, and mulched over their dwarf Roses with 6 in. of litter, have the chance of pruning much, or the choice of where and to what extent to cut back their Rose shoots. Others have merely to follow the lead of the frost, and amputate what it has already killed; and the sooner all this is done, and this killing winter is forgotten, the better. D. T. FISH.

Striking Roses from Cuttings.—It is not given to mortals to command success, but they may deserve it. One of the essentials of success in this instance, so far as my limited experience goes, is patience, and taking pains to ensure it with cool treatment. I have tried striking Rose cuttings in heat and in bottles of tepid water; but, except *Maréchal Niel*, the success, as in Mr. Fish's experience (p. 207), was indifferent. This has been the experience, too, of many intelligent gardeners with whom I discussed the matter. The majority, rightly, I presume, try this method of propagating in late autumn; but though there may be a greater number of failures, some of your readers may like also to try some suitable cuttings when pruning from this forward, as Roses on their own stocks are in very many instances much sought after. With this view, the few following hints may prove items towards success: 1. The wood must be well ripened. 2. Give a preference to short, stout, and firm side shoots. 3. If possible, take them off with a heel, trim clean and neat at the base. 4. If in the autumn, to be inserted in time to callus before frost sets in. 5. Except the soil is naturally light and sandy—in indeed in any case—put in some thoroughly washed river or road sand, on which the base is to rest. 6. The front of a south wall, if the propagation is commenced in autumn, is a desirable site. When frost sets in, a line of Laurel or Spruce branches in front would be desirable. I used dry Privet tops, over which I strewed dry hay, enough for protection, but not to exclude air; and, so far, the success exceeds my expectation, notwithstanding the unusual severity of the winter. 7. As recommended by Mr. Fish, when bottom heat can be had, potting up after callusing almost ensures success; 8. If the experiment is tried during spring, a cloche or hand-glass prevents evaporation, especially when leaves have expanded. Those who put Rose cuttings down in lines like Cabbage plants and cover in with a shade cannot naturally "command" success, and do not deserve it.—W. J. M., *Clonmel*.

Involved and Obscure Writing.—I have been pleased with what "Peregrine" said on this subject. Unhappily, a number

of writers on gardening and other matters, who would be incapable of speaking such unwieldy nonsense, think it is the right thing to do when they sit down to write for the instruction of their fellow creatures. What should we do with any one who spoke like that? No one could certainly listen to such a speaker without doubting his sanity.—J. H.

HARPER'S MAGAZINE ON THE FUTURE OF GARDENING.

UNDER the heading "The Possibilities of Horticulture" in the current number of *Harper's Magazine*, Mr. B. S. Parsons, of Flushing, writes an article. As *Harper's Magazine* is now published at each side of the Atlantic, and is a periodical of some considerable circulation, it may be not amiss to point out that the illustrations in this article are almost entirely pernicious in their tendency. There are plenty of things to be learnt as to the possibilities of gardening even in the wildest and oddest places, and there is scarcely a landscape painter of any taste or power who cannot add to our knowledge of, and delight in, the art. Mr. Parsons interlards his paper with beautifully cut illustrations of some of the most depressing and most absurd gardens in the world. Here we have, presumably for our edification, and without a word of warning, a Beech tree trimmed into the shape of the face of a smoothing iron in Mr. Sargent's garden on the Hudson River. Through the middle of the "smoothing" iron an aperture of the same form is cut, and through this formal hole in a formal tree we get a peep of a beautiful river and a steamboat. The taste and labour displayed here need no comment. Mr. Sargent's garden is one of the most beautiful in America, and really commands beautiful views of a noble river, and fine hill and other scenery from its pleasant lawn; but here we have taken from it one of the meanest things possible in a garden. Then we have the Italian garden at Mr. Hunnewell's, at Wellesley. The good Mr. Hunnewell, who has one of the prettiest places one could desire to see, with a pretty New England lake, bearing little fleets of *Nymphaea odorata* on its silvery face and fringed with native Pines, thought well, in a moment of weakness, to perpetuate some of our old topiarian notions, cut the edge of a portion of his beautiful lake into a series of steps, placed on these steps a number of extinguisher-shaped Conifers, and cut a number of these into droll knots and knobs and tiers. It is the only doubtful feature in a very pretty place, and therefore most unfitted to illustrate an article on the future of gardening in a popular magazine. Then we come to a fine engraving of the hedge garden at Elvaston Castle, England. It is one of the silliest things among the many published on the art of gardening. A thick hedge, with holes in it, and a few lines and dots around the whole, less suggestive of what is possible and beautiful in gardens than a "bewitched barley stack." This kind of thing is not gardening at all, but feverish and shameful extravagance, clipping miles of shrubs into hedgerows, and miles of trees into stiff walls. No true gardener at all is he who does this kind of thing, but a barber or stonecutter gone astray in a woody place. Then we have what is called a trimmed Holly, in shape like one of our dwarf plants of *Arborvitæ*; but on top of it a thing like a boy's hoop mossed over—two shoots of the Holly formed into a ring—a pretty subject for a nineteenth century suggestion on artistic gardening! Oh! Mr. Parsons, with your good collection of trees, and those fine *Magnolias* on your lawn, and with that fair Hudson River and those beautiful mountains near you, with their thousand suggestions of the possibilities of gardening both in spring, summer, and autumn, you ought to have done better than this, especially when backed up by *Harper's* help in drawing and engraving!—*Field*.

FROZEN WATER-CASKS AND TANKS BURSTING.

IN THE GARDEN (p. 199) there is a paragraph recommending a plan for the prevention of leaden pipes being burst by frost, and which I shall be glad to supplement with another very simple contrivance for preventing a similar mishap to water casks and tanks, or, indeed, to any kind of vessel whatever exposed to frost, and which almost everyone in a very few minutes, and at little or no expense, may easily adopt for themselves. The principle upon which these contrivances are founded is based on the fact of the air being elastic and compressible, as shown by the air-gun, and, consequently, as the water expands in freezing the expanded ice compresses the air in like proportion, and so gains the necessary room for its enlarged bulk by the contraction of the air instead of the whole of the pressure being exerted on the containing vessel. Now it will be evident that it is an essential point for the air, if enclosed in a sealed tube, to allow of its being thus compressed that whatever contains it must also be itself compressible, and hence nothing can be better than india-

rubber; but if gutta-percha, as recommended by Mr. Clarke, be substituted, this, from its rigidity, is very likely to lead to disappointment; but as a small rubber tubing, prepared specially for the purpose, is to be had, there will be no need to have recourse to the other.

To carry out this arrangement for any kind of vessel we have only to imprison a sufficient bulk of air in or near to the centre in such manner that it may readily respond to the pressure. The plan adopted by myself with water-butts and casks, and which has been perfectly successful, is as follows: First, let a stout garden stake be inserted diagonally across from top to bottom, and a mark made upon it of the depth; then fasten an uncorked champagne or porter bottle to the middle of the immersed portion, so that it shall rest, mouth downwards, near the centre of the cask, where it is to remain. This may be fastened with either tarred twine or copper wire, and there need be no fear of the bottle bursting, as the pressure outside and within will be equal and balanced. In this way several casks, holding respectively from 18 to 120 gallons, have been frozen up this winter into almost a solid mass for weeks together, and are at this minute frozen up without the slightest injury. If the principle be clearly comprehended there will be innumerable instances to be found where it may be advantageously applied; and it may be interesting to know that after all it is only having recourse to one of Nature's own adaptations of means to an end for the same purpose.

Most persons are aware that an egg contains a small portion of air confined by a thin membrane at one of the ends within. This is commonly believed to be in some way a provision for the chick at the moment of its leaving the shell, but such is altogether chimerical; the real use is to serve as an elastic or spring cushion to allow the contents of the egg to expand and contract, and yet always to keep full, so as to prevent shaking—to expand by the warmth of the bird, and to contract on cooling without injury to the shell. However, although there is a sufficient bulk of air to compensate this normal difference of temperature, there is not sufficient, it would appear, to withstand the frost of a severe winter, as this season numbers of eggs exposed in the market were burst open from one end to the other, but which I take to have been a most unusual occurrence, for I have no recollection of having ever heard of a similar circumstance.

W. K. BRIDGMAN.

Norwich.

Frost in Guatemala.—The 10th of February will, says the *New York Herald*, be remembered in Guatemala as the occasion of a frost, the heaviest in the memory of man, occasioning damage the like of which has no record in the history of the country since its conquest by the Spaniards. The cold wave seems to have come from the north, apparently traversing the Cordillera through Mexico, and leaving evidences of its effects in various parts of Mexico, as well as in San Marcos, the Costa Cuca and Costa Grande, before reaching Guatemala, where it spent its force with a grand display of its most pernicious influences on tropical fruits and crops, which withered away at its touch as before a devouring flame. The leaves of the Coffee trees, the most vigorous tree as well as the tenderest shoot, were discoloured and shrivelled, and broke to pieces at the slightest touch, while even the tender twigs were injured. Several years must necessarily elapse before these plantations can be restored to their usually healthy condition. The Sugar-cane was killed as it stood, so that the loss in this respect is confined to the amount now actually uncut, although all of this even will scarcely be a total loss. The amount of damage done is calculated to be between one and two millions of dollars. In New Jersey we have only had the thermometer 12° below zero once, but twenty miles from here (Maywood) it has been 30° below it, and there has been ice from 18 in. to 3 ft. thick; the ground too has been frozen over 4 ft. deep. We have had comparatively little snow here, although some of the November snow is yet on the ground, and we had two months' splendid sleighing, but the sun is now getting hot, so that snow and ice are disappearing fast.—JAS. TAPLIN.

ENGLISH PLANT NAMES.

MR. VEITCH, of Newhaven, and Mr. Meehan, of Germantown, in the *Gardeners' Monthly*, are picking holes in the English-name question, and saying nothing about the manifold absurdities of the Latin nomenclature which is necessary in the present state of our knowledge. As soon as space will permit we propose to have some talk with these gentlemen. English nomenclature, hitherto entirely ignored, has of course many faults and drawbacks, inasmuch as nobody ever took the trouble to systematise it; whereas the Latin nomenclature is the result of the work of many generations of able men. A very good attempt at forming a native nomenclature, so to say, has been made in a kindred language. It is not at all

likely that the English race, who now cover so large a part of the world, and in whom the love of flowers and trees is so deeply rooted, will continue for ever to use, in naming their favourites, a language that is strange to all but a few of them; it is not at all likely that the highest branches of plant knowledge, so to say, will be for ever made difficult by a strange tongue. It is all very well if full knowledge of such things is to be confined to a few only, but we look, in the future, for plant knowledge being made familiar to many. Meantime, and waiting the coming of the reformers, we will ourselves use an English name wherever there is a chance of using a good one. That there may be three or four English names should not deter us, considering that there are often twice as many Latin names given to the same plant at different times. We shall inconvenience nobody by doing so if we give the Latin name too.

THE GARDEN FLORA:

THE SCARLET STONECROP.

(*SEDUM SEMPERVIVIDES*.)

THIS name is commonly applied to *Umbilicus Sempervivum*, or, to be quite correct, *Cotyledon Pestalozzeae*, a totally distinct plant, and much inferior from a garden standpoint to the true *Sedum sempervivoides*. Both are *Sempervivum*-like plants, that which we now figure possessing the habit of *S. tectorum*, the common House Leek. *Umbilicus Sempervivum* has the fleshy rounded-tipped leaves arranged in a rosette-like manner; they are of a shining green



Umbilicus Sempervivum.

colour, and the reddish flowers are arranged on the stem in a loose manner. The confusion, no doubt, has arisen on account of *S. sempervivoides* having been named by Ledebour as *S. Sempervivum*. It is remarkable that such a showy, hardy plant as this should be yet scarcely known in cultivation.

Culture and Position.—This Stonecrop is strictly a biennial, flowering freely the second year from seed and then dying. It forms a rosette of thick fleshy leaves of a greyish-green, tinged with purplish-red, and varying in colour according to the amount of light it receives. In very hot positions it assumes quite a metallic hue. In general appearance it resembles an *Echeveia*, or intermediate stage between that and a *Sempervivum*; although the coloured illustration herewith given was made from a plant growing on the rockery at the Hale Farm, Tottenham, and which had been out the whole of the previous winter, yet it cannot be considered hardy. It will, however, grow very freely on a dry bank during summer, and stand a large amount of frost, provided it is dry, but frost and wet combined will kill it. Seeds of it germinate freely, and it is very easily managed. It should be sown in January in gentle heat, using great care in watering, as the seed is very fine, or, better still, do not water at all, but keep the pot plunged, so that the soil does not get dry. As soon as the young plants are large enough to handle prick them off, keeping them near the glass, and by no means let them get dry. As soon as they are large enough pot them singly, and treat them liberally with water while growing, and by the end of the summer they should be as large as a crown-



THE SCARLET STONECROP F. *SEDUM SEMPERVIVOIDES*

piece. During autumn and winter withhold water, keeping them just sufficiently moist to prevent the leaves from shrivelling, and in spring repot and keep them growing freely until the flower-spike is fully developed. The time of flowering will depend a great deal upon time of sowing, treatment, &c., but under ordinary circumstances it will be in July or August. The flowers will last in good condition for six or seven weeks. This *Sedum* is quite as brilliant as the well-known *Roechia falcata*, which its bloom very much resembles. It is in short, as will be seen, a first class decorative plant. It is a native of Asia Minor and the mountains of Caucasus.

A. B. P.

A NEW MAPLE.

ACER INSIGNE is a new Maple which has only just now found its way in to cultivation, and there seems little reason to doubt that it will prove a useful and valuable addition to our lists of hardy trees. With the ordinary Sycamore it possesses many points in common, notably in the similarity which obtains between the leaves and keys of both. From that well-known old favourite, however, it differs considerably in floral characters,

*Acer insigne.*

the inflorescence of that being a pendulous raceme, the bases of the stamen filaments being hairy, whilst in *A. insigne* the flowers are borne in upright panicles, and the filaments of the stamens are smooth. In its native country it flowers in May.

G.

THE FRUIT GARDEN.

PLANT FRUIT TREES EVERYWHERE.

THIS recommendation is doubtless looked upon by many simply as a trade announcement. But in Kent fruit trees are literally planted wherever there is a piece of ground capable of sustaining a tree. By planting in all kinds of aspects and situations, if some fail others succeed; consequently fruit culture in Kent has been able to make progress, despite an unusually protracted run of unpropitious seasons. In some districts, fruit trees are so scarce that those who try to grow Apples have a great difficulty in keeping them, for boys soon know where so rare a treat is in store for them; while here in Kent they are so used to see fruit lying about in large heaps during the gathering season, that it is only the most tempting kinds that are picked; in fact, when I first came to reside in Kent, I was astonished at the quantity of fruit left under the trees, while in other parts of the kingdom a prohibitive price was being asked for such fruit. Here a fruit tree of some kind is planted against almost every cottage wall, according to the nature of the soil, for there are no such things as artificially-constructed borders; a hole large enough to get the roots in is simply dug out, and on what is called heath land, where the soil is poor and stony, the finest crops of Morello Cherries are borne that I ever saw. Large quantities of them are sold in Maidstone, where the manufacture of Cherry brandy forms quite a special industry. Most of the training they get is simply cutting out the old exhausted wood at this time of year, and laying in the young shoots of

last year's growth. On heavier soils Plums and Pears are the favourite fruits, as they need but little attention, and bear well on the spur system of pruning. They are fastened to the walls in the most primitive manner, for the majority of walls being built of stone precludes the possibility of regular training, such as may be done on brick walls. Hop kilns, farm buildings, and even boarded fences are utilised for fruit culture. Some of the high buildings have large iron staples or crooks built into the joints of the wall for supporting the main branches, and in this way a good crop of Jargonelle Pears, or Early Violet or Orleans Plums is obtained, and finds a ready sale at highly remunerative prices. There is not much fear of fruit trees growing too strongly in hard soils. It is the loose soil full of manure that makes watery, soft growth, but when the crop is swelling a good top-dressing of manure and the application of liquid manure in quantity are highly beneficial. The idea that Kent enjoys a monopoly of good soil needs to be confuted, for certainly there is a great deal of land around Maidstone devoted to fruit that would hardly be considered worth cultivating in some counties, and the soil is more variable than in any other county I have yet met with. As regards standard trees, none enjoys so much popularity as the Apple; as a rule, indeed, the gardens attached to cottages have more the appearance of orchards than open vegetable gardens, as the owners all look to fruit to pay the rent, the vegetables being quite a secondary consideration; many even sell their fruit and buy a supply of Potatoes at a cheap rate off the growers of them for market. Apple trees are really planted everywhere; and at this time of year, when cottage gardeners in the eastern counties are debating what seed Potatoes to plant, their neighbours in Kent are considering what will be the most profitable Apple to graft, and amongst the numerous cultivators who make fruit culture their means of living, the planting of "fruit trees everywhere" is by no means an exaggeration, for one sees ranges of fruit trees in the most unlikely positions. I have at various times alluded to utilising the hedgerows for Damsons and Bullaces, and there is not the slightest reason why this means of augmenting our fruit supply should not be generally adopted throughout the country, for fruits are in such universal favour that there is no fear of overstocking the market; growers in a small way would find it an advantage to use them more largely.

In order to indicate the sorts of positions in which Damsons and Bullaces will flourish, I may mention that we have some good trees in a shrubbery planted for a shelter screen on the coldest and bleakest corner of a cottage, and although there is an undergrowth of evergreen and deciduous shrubs, the Damsons yearly bear good crops. We have up to the present been using them in a bottled state, by which means they may be had at a trifling cost during many months of the year. We have Apple and Cherry trees growing among shrubs, and in some seasons more prolific than in exposed situations; and I have seen on many an old-fashioned lawn the most prolific fruit trees of the neighbourhood.

J. GROOM.

Linton.

FRUIT CULTURE FOR PROFIT.

IN the first paper I wrote on this subject (p. 43) I admitted that the title might appear to some to be out of place, but I am sure those of your readers who have read the papers in question all through will grant that I never had any intention to mislead or mystify, for at the beginning I stated I was not dealing with any one phase of fruit culture exclusively, but was trying, as far as in me lay, to take a comprehensive view of the whole subject, looking well into all its various details. When I began these papers I was deeply impressed with the generally neglected condition of the fruit culture of the country, as evinced in nearly every parish by the worn-out, old, moss-grown trees that have certainly never been ruined by either pruning or training. No one would be more willing to admit than myself that much harm has been done by too much use of the knife and too much time spent in training, especially when under the influence of that pernicious rule of thumb system which still flourishes. But granting all this, I still say if you train at all do so with exactitude. We expect to accomplish by training a given result, and there is a best possible position for any branch or branches to be placed in in order to obtain that result, and nothing less than this should satisfy us. The time taken up in such work must of course vary according to the expertness of the operator, just as a skilful artist will make a better picture with a few strokes of his pencil or brush in a few minutes than the mere dauber can do in days or weeks. So in the matter of training fruit trees. It is mainly a question of grasping the situation. I dare say "J. S. W.," with his experience, knows very well that there is a vast difference among workmen, but that is no reason why the standard should be lowered to suit special cases. The chief reason why trained trees so often fail and become miserable abortions is the pernicious habit of digging among their roots and driving them

downwards, instead of keeping them near the surface, where their wants could be easily supplied, and where the solar warmth, to which they would be exposed, would ensure fertility.

"J. S. W." bases his adverse criticism chiefly upon the title, "Fruit Growing for Profit." But what is profit? I may say I have read "J. S. W.'s" criticism with interest and, I hope, "profit," but I don't suppose I shall be any richer in a pecuniary sense. I am trying to treat the question in the widest possible manner, and I regard "profit" as a general principle that actuates and influences every man in all he does. To get gain in some shape or form is the moving impulse of the world, but that gain may be received otherwise than in actual cash. Most men who plant fruit trees largely have a special fancy for particular kinds and shapes, which probably they have proved to suit their particular situation and circumstances; and any given shape or system may be suitable or the reverse, according to the site or other local conditions, not the least thing to be considered being the character of the planter himself. Many a very useful hobby has been ruined either by riding it too hard, or else by neglect when the novelty has worn off. Taking all things into consideration, if any one desirous of planting an acre of Pear trees should ask my advice, I should be guided in the answer I gave—firstly, by the locality, its shelter, soil, drainage, &c.; and secondly, by the character of the planter. The cultivator who has no idea of small things or minutiae in his work should not be placed in a position where much detail is required. But then there is plenty of choice. We can pick our trees to suit our tastes and circumstances. I would not say dogmatically plant such and such a tree, trained in such a manner, under all and every circumstance, about which of course I cannot know anything, as such a course would savour too much of quackery; what I do say is, here are a number of trees trained in various ways, all possessing some advantages for special localities; make your own selection. Of course if anyone plants 1 acre of pyramidal or any other kind of trained fruit trees, I should assume he was prepared to give his personal attention to them, and not delegate the work to one who had no thought or care in the matter, nor yet to one whose ideas did not lift him out of the rut "of rule of thumb." A system may be good or bad according to the way in which it is worked out.

E. HOBDAV.

THE ORCHARD HOUSE.

Vines.—In addition to the various kinds of fruit trees which have in former papers been recommended as suitable for the unheated orchard house may now be mentioned some of the more hardy varieties of the Grape Vine. These may be grown in pots, and trained in various ways, such as winding the rods spirally to three or four stakes fixed in the soil, or keeping them in the form of dwarf bushes, or, perhaps, better still, as low standard trees, the stems of which should be secured to a strong stake fixed in the soil. To the top of this stake should be fixed, by means of two cross wires, a circular hoop of strong wire some 18 in. or 2 ft. in diameter, and to this the Vine rod should be secured. When this is neatly done the bunches have a very pretty appearance hanging from the hoop. When the fruit is ripe such plants may, if desired, be placed upon the dinner table, means of course being taken to in some way conceal the pots. Such plants should occupy pots some 10 in. or 12 in. in diameter; they should be well drained, and the soil used should be rich, turfy loam, well rotted manure, and a few bones. The plants should not be allowed to bear too many bunches, which should be regulated in accordance with the size and condition of the Vines, and the berries composing them should be carefully thinned out before they are larger than Sweet Peas. When the fruit is swelling the Vines should have liberal treatment, such as rich surface dressings, or the roots may be allowed to pass through the bottoms of the pots into the border of rich soil on which they may be placed; occasional applications of well-diluted liquid manure may also be given when necessary, but this should of course be withheld when the fruit is approaching maturity. In most orchard houses, however, situations may be found where the Vines may be planted out, either in inside borders of prepared soil, or, what is perhaps still better, the roots may be outside, while the rods may be introduced under the wall-plate, and trained to the pillars which usually support the roof, or to wires over the paths, or in some other way which need not in the least interfere with the other inmates, but which would at the same time give increased beauty and interest to the appearance of the house. It should, however, be borne in mind that it is only the more hardy kinds of Vines which are likely to ripen their fruit under glass without the aid of artificial warmth. The selection should there-

fore be confined to such varieties as the Royal Muscadine, Sweet Water, Miller's Burgundy, Black Prince, and Esperione, the last-mentioned being, when well ripened, nearly equal to the Black Hamburgh, and even the latter, in ordinarily favourable seasons, is found to thoroughly ripen its fruit under glass without any assistance from fire heat in most of the southern and south-eastern counties of England.

Figs.—The orchard house is also the most suitable situation for the Fig, unless it be in cases where a structure is expressly devoted to its culture. In the open air, even when the trees are trained to walls with southern aspects, unless it be in the most southern or the most favoured parts of this country, the Fig crop is at best uncertain, and on that account it is advisable to grow at least a portion of the trees under glass or in the orchard house. Whether in the open air or under glass, however, it is difficult to induce the Fig to conform to any particular form of training. And such trees, when sufficient space can be allowed them, are mostly found to bear best when permitted to ramble as they like, or to grow in a somewhat unconstrained, free, and easy manner. They, however, succeed very well when grown in the form of bushes or standards in pots placed in the orchard house. The pots should be some 12 in. more or less, in diameter, and the plants should be firmly potted in sound loamy soil, without any admixture of manurial matters. They should, as far as possible, be made to assume a compact, bush-like form, and the branches should not be allowed to become crowded, while the young shoots should be repeatedly stopped, or pinched in order to induce the production of fruit. Abundance of water should be given when the latter is swelling, and great care should be taken to avoid anything like a check during that period, which would be almost certain to cause the fruit to fall off prematurely. It is also advisable to avoid, as far as possible, wetting the swelling fruit, which is sometimes supposed to cause it to drop off. When the crop has been gathered, the trees may with advantage be placed in a sunny situation in the open air, plunging the pots and giving all necessary attention as regards water, &c., unless, it is attempted to induce them to produce a second crop, when they should, of course, be retained under glass. This, however, can seldom be satisfactorily accomplished without the aid of artificial heat. There are in cultivation many varieties of the Fig, and possibly all of them are worthy of being grown. But the following six sorts will be found suitable for orchard house culture, and will form a sufficiently large selection, which may nevertheless be increased if found desirable. Early Violet is very early, prolific, and well flavoured, round in form, and small in size. Black Bourjassote and Grizzly Bourjassote are both excellent varieties, of medium size, and of first-rate quality. Brown Turkey or Lee's Perpetual is a well known first rate variety, of rich quality, and of fair size. Carrington is a large white sort of excellent quality. Castle Kennedy is round in form, large, early, prolific, and of good quality.

Mulberries.—The fruit of the common black Mulberry is appreciated by some people, and although the tree is perfectly hardy, it does not always ripen its fruit well in the open air, and a considerable portion of it generally drops off before it becomes thoroughly matured. This does not, however, occur under glass, or if it does it is to a less extent, and the fruit is also found to attain larger size and better colour and flavour. The trees are of easy culture, and are by no means particular as to soil, and do not require to be grown in large pots. They can be readily made to assume the form of low standards, and are very ornamental. They require abundance of water until the fruit begins to colour, when less may be given; but it should not be altogether withheld, or the fruit will be sure to drop off prematurely.

Pomegranates may also be grown and ripened in an orchard house on low standards with clean stems some 18 in. long. The fruit can hardly be described as delicious, but the plants themselves are very ornamental when in flower, as well as when bearing fruit, and a few such plants give variety and interest to the interior of the structure.

Eugenia Ugni.—The same may also be said as regards this, the fruit of which is, however, highly flavoured and by some people appreciated. Plants of it can be readily grown in the form of bushes or low standards, the fruit of which will be found to thoroughly ripen in a warm and sunny situation in the orchard house.

Currants.—A few plants of Red and White Currants, trained into the form of standards, when laden with ripe or ripening fruit have a pretty effect, and if such kinds as the Red Grape, Knight's, Long Bunch, &c., are used, the size and flavour of the fruit is improved.

Strawberries may also, if desired, be grown in the orchard house, but it is necessary that such plants should be placed upon a shelf, or in some way be brought pretty close to the glass. In lean-to structures this can be accomplished by the aid of a shelf fixed at the proper distance from the glass near the top of the back wall, while another shelf may occupy a portion of the front of the house. In a span-roofed structure temporary shelves may be fixed over the centres of the paths, where it has been recommended to train the rod of a Grape Vine, which could be readily moved on one side when the shelf was in use, and returned to its proper place when the latter was removed. This shelf should be some 18 in. from the glass, but should not come so low as to interfere with the use of the pathways. The plants should be prepared in all respects as if intended for forcing; they should receive their last shift during the month of August, and may be wintered in cold pits or in a frame. They ought to be fruited in pots not exceeding 5 in. or 6 in. in diameter; and about the middle of February would be a suitable time to introduce the first portion of them into the house, while another portion could be introduced some three weeks later. By this time the sun will have gained considerable power, and, the pots being small, careful attention as regards watering will be necessary. To prevent drip from the pots, each should be placed in a pan or saucer; but, at the same time, water should not be allowed to stand in the latter, as its presence may be regarded as an indication of the soil in the pots being in a moister condition than is desirable. Very much will, of course, depend upon the weather, but, generally speaking, the fruit of the plants first introduced will ripen a month or three weeks earlier than that of the same kinds growing in the open air; consequently, the season during which this fruit can be had is by this means very considerably extended. Many excellent varieties of this fruit are now in cultivation. For general purposes, however, Keen's Seedling may still be recommended, together with Sir Joseph Paxton, Sir Charles Napier, and British Queen.

Best Form for an Orchard House.—It is by no means necessary that an orchard house should be an expensive structure, although it is desirable that it should be substantially built, as this will be found to be in all respects the cheapest in the long run. As regards form or construction, it may be either a lean-to or span-roofed erection, but the latter is the most desirable; and although it is not absolutely necessary that the structure should run north and south—that is, one end facing south and the other north—still that is, without doubt, the best position in which to place it. As to the dimensions of such structures, that must entirely depend upon existing circumstances or requirements. What, however, may be considered a medium-sized and useful span-roofed erection might be say 20 ft. wide, 12 ft. or 14 ft. high, and 80 ft. to 100 ft. long; while large structures, such as that at Drumlanrig, is 24 ft. wide, 18 ft. high, and several hundred feet long, and this structure is said to be in all respects a very great success. In most gardens, however, it will be admitted that a moderate and continuous supply of the best fruits is better than a glut, as it were, of any particular kinds, however meritorious they may be. It is, of course, of the greatest importance that such structures should have ample means of thorough ventilation. Roof openings are necessarily expensive, but they are indispensable in large span-roofed structures, and such should all be made to open and close simultaneously by means of some of the many improved methods of effecting that necessary operation now in use. Both sides of all span-roofed houses should, of course, be made to open to any desired extent, and it is necessary to exercise discretion in this matter, more particularly during the early part of the season, or at the time when most of the trees are in bloom or about to set their fruit. At this time it will seldom be advisable to open both sides of the house at the same time, as this necessarily places the trees in a draught, which is anything but favourable to them, more particularly early in spring, when, although the sun may be powerful, the wind is not unfrequently cold and cutting. Therefore on that account it is safer to admit air by the roof lights only, or with the addition of the side lights on one side of the house only slightly opened. And should the temperature of the house even

then become somewhat high, there need be no apprehension of injury to the trees, as a somewhat high temperature is found to be favourable to the free setting of most kinds of fruit.

Orchard Street, Bury St. Edmunds.

P. GRIEVE.

SEASONABLE WORK.

Orchard House.—In late houses the Apricots, Peaches, Nectarines, Pears, and Plums will now be in flower, or approaching that stage, and their safety will greatly depend upon the maintenance of a circulation of dry air in damp weather and security from sharp morning frosts. With a heating apparatus of the most simple and inexpensive character these conditions may be maintained, but without it stagnant moisture is often as injurious as frost. The trees during the time they are in flower must be gone over daily with a camel's-hair brush to insure a good set, and the water applied to the roots must be some few degrees warmer than the mean temperature of the house. With fire heat at command, stone fruit trees of all kinds should have constant air, unless the weather is very wet or severe, when atmospheric moisture must be sparingly applied. Get Figs in late houses and cases uncovered. Soak the pots or borders with warm water, and defer pruning or training until returning expansion of the buds shows the extent of the damage they have received from the past severe frost.

Forcing Orchard House.—Growth will now be very rapid in this department, and light being essential to quality, see that the house does not become overcrowded with trees. It rarely happens that every forced tree sets a crop of fruit, and when this is the case, the removal of a few of the least promising will be well compensated when the fruit on those left begins to ripen. The pots being full of active roots, a liberal supply of warm liquid will be needed, and top dressing will also help to meet the rapid demand for food. If space for mulching and watering is limited, place bands of lead or zinc 4 in. deep round the inside of the rims of the pots, and fill in with mulching litter and often, as the roots work up to the top. Insect enemies will now spring into life and soon work serious mischief, particularly where Strawberries have left a colony of aphides and spider. To exterminate the first, two or three moderate smokings on alternate evenings will be necessary, and spider is obliged to give way to sharp syringing with a weak solution of soft soap every night after the sun is off the roof. As soon as clean return to the use of pure water.

Pines.—When the early fruited have passed the flowering stage support the fruit in an upright position by means of two stout sticks placed in each pot. Remove all gills and superfluous suckers, and encourage rapid development by shutting up early with sun-heat, plenty of moisture, and an occasional syringe overhead on fine afternoons. As the sun increases in power it will be necessary to keep a sharp eye on the bottom-heat, particularly where fermenting materials are used, and to see that it does not exceed 90° at the base of the pots of fruited, and 80° to 85° in succession pits. Examine each plant separately once a week, and water freely with tepid liquid, or guano water when absolutely necessary, but carefully avoid the dribbling system of giving a little to keep want away. Spring potted plants now taking to the soil will stand more air and light. Dew them lightly over after closing, and take advantage of bright, sunny afternoons for maintaining a brisk, invigorating temperature about them without having recourse to extra fire-heat.

W. COLEMAN.

THE KITCHEN GARDEN.

CROPS THAT COME IN EARLY.

THERE are few kitchen gardens that do not present a very bare appearance just now, for except in the most favoured districts the frost has made a clean sweep of everything green. All that can be now done, therefore, is to set about repairing the loss as quickly as possible by sowing and nursing on plants to fill up the ground. Spinach is one of the crops that soon turn in, and small breadths yield many pickings. With warm weather and rich soil it grows during April and May at a rapid rate, and is more rich and succulent than at any other season. To have it in this very desirable condition highly-manured land is necessary, and if at all infested with wireworms or grubs, which greatly injure the stems near the root, it is a good plan to give a dressing of soot before digging. To expedite the first crop seed should be sown on a warm sunny border, and at the same time, or quickly after, some more on the plot, and to economise space it may be got in between rows of Peas, as the gatherings of the Spinach will be over before the Peas shade the ground. Next to Spinach in point of speed for turning into use are Turnips, which, if they can be sown where they can get a little warmth from fermenting manure or leaves, grow at a rapid rate, and soon form bulbs fit for cooking. The easiest way to obtain the bottom heat is to dig a wide deep trench in a sheltered sunny position, and then fill it with fresh stable manure, on which 9 in. or so of soil should be put before sowing the seed, or failing the opportunity of making such a bed there will not be much time lost by making use of a south border for a start, when another sowing may be made later

on in a less favoured situation. To get a few early Potatoes and Paris Cos Lettuce, together with a sprinkling of Radish, the slight hotbed already adverted to is almost indispensable at this early season, as although within a fortnight they will do very well without it, the little extra labour it involves pays in the end. The Potatoes will of course require some protection, and an easy means of affording them this is to bend rods over, and to tie others along to support, mats or other covering to be thrown on at night. Potatoes, too, may be got very early by planting close up to the foot of a south wall or fence, where by sticking evergreen branches along in the front they will be secure from frost. As Broccoli are nearly all killed, Cauliflowers will have more than ordinary value, and it is doubly important that these should be pushed on that they may be got in fit for cutting as quickly as possible. If plants can be obtained that is a great point gained; but if not, seed should at once be sown on a gentle hotbed or in boxes, and stood in heat to expedite germination, and as soon as the young plants are large enough they should be pricked out in rich light soil under glass, from whence they may by-and-bye be lifted with good balls, and planted out in highly-manured ground in the open. To save any check it is a good plan to pot a portion of the strongest instead of pricking them out, as then there is less disturbance of the root when they are transferred to their final quarters, and they are therefore able to start off at once. It is not often necessary to raise Cabbage under glass; but as those planted out in the autumn have gone the way of most other vegetables there is no help for it this year if we expect to have any before we get into the summer. Wheeler's Imperial is one of the quickest, and if sown at once and pushed on will soon be in, and when cooked is a delicate, mild, good-flavoured kind. With a frame or pit to spare that is deep enough to hold 1 ft. or 2 ft. of hot manure, French Beans may be had in quantity, as planted out in rows at about 18 in. apart with bottom heat they bear profusely. To help them at top the frame should be shut early in the afternoon so as to conserve all the sun-heat possible, and be covered by night to prevent its escape or the cold getting in. Light rich soil is the thing for Beans, and to save the stems rotting be sparing with water till they become advanced and are beginning to bear. S. D.

LAYING WINTER BROCCOLI.

SUCH winters as we have just passed through, and the one preceding, will possibly do something to show the necessity for more generally taking means to help this important vegetable to withstand trying seasons. For where the plants have been left standing in the position as grown, not one in a score, or often a hundred, has escaped death—very different from the condition they are in when heeled over, and the operation carried out at the right time, so as to give the plants the requisite check, a matter that has quite as much to do with their being able to withstand a severe season as has the less exposed position they are in when heeled in. Not the least advantage of heeling over is that it admits of the plants receiving the slight covering that in the worst winters is generally sufficient to bring the crop safely through. Straw or stable litter, used in the quantities necessary to preserve such portions of the crop as are forming their heads at the time a frost sets in, is not at all necessary to save the later successions intended for spring use. I have often found that a few evergreen branches, stuck in thinly in a slanting position between the heeled-over rows, was ample to ward off the effects of driving frosty winds and sudden sun thawing, which latter not unusually, when again followed by frost, is fatal. When frost set in that appeared like lasting, I frequently used to have the old Pea sticks laid thinly over the later crops; little protection as these might seem to be capable of giving, yet it would surprise any one who has not tried such a simple expedient what a difference they, or anything of a like description, make. Old Asparagus haulm, or anything that will lie loosely, is much preferable to straw, or whatever lies close and holds wet. Broccoli, more than most things, can ill be spared, and its destruction is sorely felt by gardeners, when, as this year in many places, the whole spring stock is killed. It has been urged that, because the market growers do not lay their Broccoli, the practice was useless; but the argument is devoid of force, for that which would be a matter of considerable labour if carried out where this vegetable is grown by a dozen or a score of acres, in private gardens does not take time anything proportionate to the value of the crop; and I doubt much if even the market growers would not find it to their advantage to lay their Broccoli, for the additional cost per acre would be only a small item as compared with the loss sustained when a winter comes that leaves little beyond dead stalks. T. BAINES.

Ragged Jack.—This delicious spring vegetable appears with me to have withstood the severe frosts better than any other kind of green. I have not lost a single plant of it, a circumstance which

clearly shows its hardy habit. My white and purple Broccoli, Kale, and Spinach have all suffered more or less, and even spring Cabbage is looking weakly. I have grown these "Jacks" for years and always raise my own seed. I cut the heads off in March and they continue to sprout all through April and May. I wonder this vegetable is not more generally grown than it is; in flavour it is the nearest thing to Asparagus I have ever tasted, and wonderfully prolific.—H. L. B., *Wrentham, Ereter.*

Seakale from Seed Sown Indoors.—There are various ways of propagating Seakale, such as chopping up the roots and planting them like those of Horseradish, or dividing the crowns into a number of plants, but in both these ways the plants appear to degenerate, and in order to secure a fresh batch of really healthy young ones a number should be raised from seed occasionally. As many know, Seakale seed is about the size of Sweet Peas, or at least the shell which contains the seed is, and frequently very hard. This and other causes may be the reason why Seakale seeds sown in the open ground, or on the place where the crop is desired, seldom germinate freely or evenly, and the young plants consequently are irregular. So much have I found this to be the case, that I have given up sowing Seakale seeds in the open ground, and now raise them under glass. They may be sown in cutting boxes or pots. When two or three seeds are placed in a 3-in. pot amongst some rich soil and afterwards put into a gentle heat the plants appear in ten or twelve days, and they may be grown on to a good size in the pots and be gradually hardened off until they are finally planted out. In doing this they can be put at the desired distances apart, and every one may be depended on to grow. About 200 plants will make a good plantation, and the labour required to raise them in pots is trifling compared with the advantages of the system; a full plantation of early strong healthy plants is much to be preferred to an uncertain crop, defective rows, and late plants.—CAMBRIAN.

Broad Beans amongst other Crops.—Beans are not a very important crop, as many do not care for them more than once or twice in the season; but few gardens should be without them, and in some they appear to be grown largely; but whether in large or small quantities, I would never grow them by themselves, but, amongst other things, as an extra crop. In many cottage gardens, where much has always to be made of small space, it is a favourite way of growing Broad Beans to place the seeds here and there amongst Potatoes, and no better place could be found for them, but amongst Potatoes is not the only place in which they may be grown. Amongst Onions, Carrots, Parsnips, and even amongst Cabbages, Broccoli, and such like they also grow and do well. The seeds may be put in singly, two yards or more apart, amongst any or all of these crops, and they will grow up and bear finer pods than ever they would do crowded together in rows by themselves. When grown here and there, their shade injures nothing, and they may be stopped at any distance from 1 ft. to 3 ft. Last season we had the Leviathan Broad Bean, with pods 15 in. in length, growing between rows of Cabbages, and others, put in singly anywhere between Gooseberry bushes, were little inferior.—J. MUIR.

Potatoes for Pot Culture.—I agree with "A. D." (p. 196) that the pot culture of Potatoes does not receive the attention which it deserves; there is no other system equal to it for a first crop. The best I have had is Early Handsworth, the tubers of which all grow close to the stem. Although only second-rate in quality, under ordinary culture it is very good from pots if the soil is allowed to become quite dry about two days before the tubers are wanted for the table.—JAMES SMITH, *Waterdale.*

—"A. D." when recommending Potatoes for pot culture (p. 196) says: "Mr. Fenn once raised some kinds especially for the purpose." When I last saw them they were growing in Mr. Dean's ground at Bedford. Alice Fenn gained, along with Little Gem, first class certificates at the Chiswick trials of Potatoes. I have frequently lately been asked for these varieties, but so far as I am concerned they are not to be had; however, there is a better substitute in a cross with my Early Market and Hogg's Early Coldstream, which I named Worthington G. Smith, in compliment to our scientific unfold of the Peronospora. This I consider to be the perfection of a Potato for pot culture and early forcing, and also for the earliest border work.—ROBT. FENN, *Sulhamstead Abbott, Reading.*

Rhubarb for Succession.—In order to get a good supply of Rhubarb from open-air plants without removal at least a fortnight before it would otherwise be fit for use out-of-doors, we cover several good strong clumps of an early kind with long litter about 1 ft. thick, removing it on bright sunny days, and replacing it directly the sun's rays begin to decline, thereby economising the sun heat; and in March, when the variations of temperature are rapid and the sun's rays powerful, accompanied by cold cutting winds, it is surprising what may be done by so old a practice as this in forwarding crops. The latest crop of Seakale may also be readily blanched

where it grows by covering the roots to exclude the light; and early Potatoes and Radishes used to be generally forwarded in this way before heated glass pits made us despise the simple expedients of our forefathers. Possibly, however, there are many owners of small gardens who may find such easily applied devices of service even now.—J. G.

TREES, SHRUBS, AND WOODLANDS.

THE HIMALAYAN SPRUCE.

(*ABIES SMITHIANA*.)

THIS is said to be the most graceful of all the Fir tribe inhabiting the Himalayas, for although in a young state it has a rival in the Deodar, yet as the latter grows up it loses its light elegant habit which the Spruce in question retains, a fact fully borne out by its appearance in this country, for where the branches have plenty of room in which to develop themselves their disposition is most graceful. The cones, which are freely produced after the tree has attained a height of from 10 ft. to 15 ft., are very handsome; at first they are of a glaucous green hue and upright, but as they increase in size they become pendulous, and when full grown are 6 in. or 8 in. in length. The leaves are longer and of a paler green than those of the common Spruce, to which they bear some resemblance. This Fir, which is freely distributed throughout the Himalayas at an elevation of from 7000 ft. to 12,000 ft., grows there from 100 ft. to 150 ft. in height, and 15 ft. or 20 ft. in circumference, and bears at a distance, when in masses, the appearance of a forest of Norway Spruce, but lighter in appearance, and, on closer inspection, the beautiful pendulous branches and the light open character of the tree becomes apparent.

This Fir, which is now much planted, grows freely with us in this country; but, in common with many other Conifers, if in a low or damp situation it commences to grow early in spring, and often suffers from late frosts. When more elevated, however, the growth is retarded till all danger from frost is past. As regards actual frost, it has withstood without injury the severity of the last two or three winters. The name of Smithiana was given to this Fir by Loudon, but it has several others, the most common of which are Khutrow and Morinda. The last is that under which it is now most commonly known in nurseries.

When scarce it was often propagated by grafting, and also by cuttings, as it roots freely; but the difficulty of getting it to form a leader was against such a mode of propagation, and as seed is now so readily obtainable owing to its having ripened it in many places in England, and large quantities of it having been imported, no other mode of increasing it is practised.

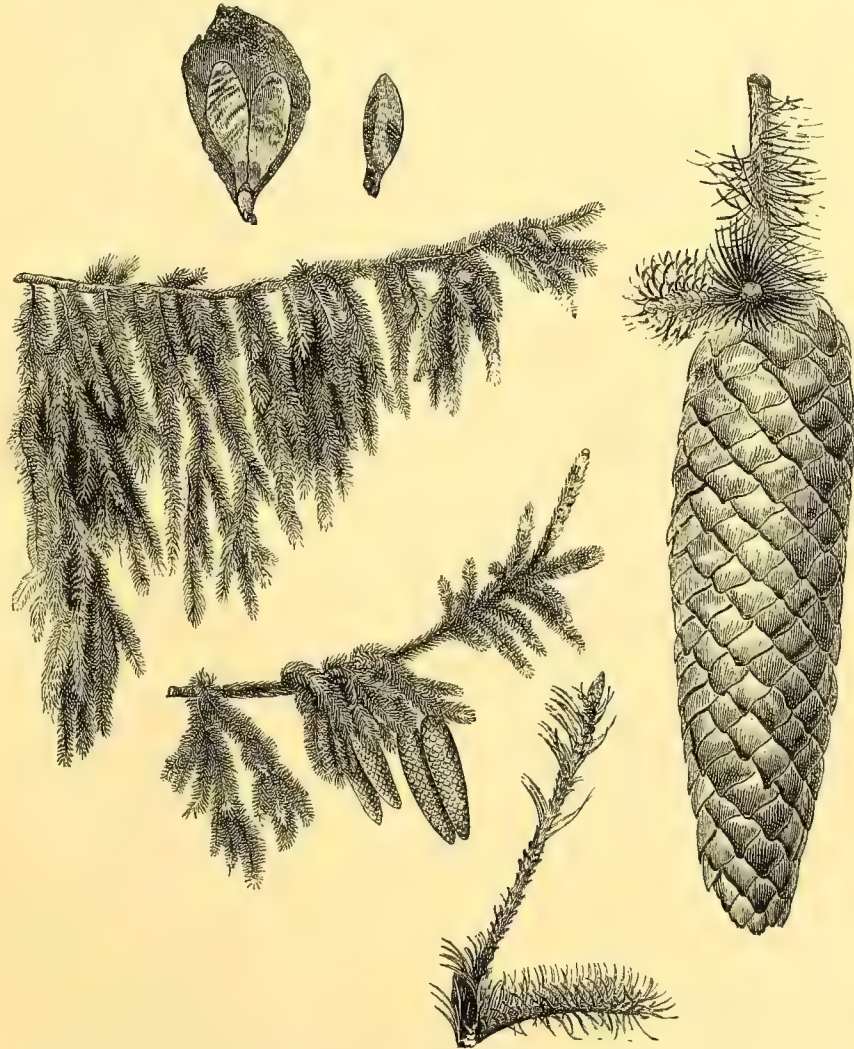
ALPHA.

Nuttallia cerasiformis.—This is a quiet-looking flowering bush, with many little drooping racemes of white blossoms, not conspicuous, but fragrant and very early. We are indebted to Mr. Stevens for strong, flowering shoots of it. It is American.

A FEW HANDSOME DECIDUOUS SHRUBS.

Elæagnuses.—As plants having a distinct character in growth, foliage, and flowers the varieties of the pleasing neutral grey-leaved *Elæagnus argentea* and *angustifolia* are well worth the notice of planters. They are not at all fastidious as to soil provided there is no standing water in it. In the neighbourhood of lakes or quiet river scenery in the near vicinity of cascades they are useful, and cannot well be out of place. The beauty of these half trees would be considerably heightened by the proximity of dark-foliaged subjects such as will readily occur to a planter, taking care not to choose any coniferous plants, as when wishing to produce pleasing contrasts similarity of form in foliage should be avoided, and as the *Elæagnuses*, without exception, have rather narrow foliage the reason will be obvious.

Spiræa lævigata is a compact-growing variety of this fine



Abies Smithiana. Cones, drooping branches, and seeds.

species, possessing large white bunches of white flowers and smooth green lanceolate leaves. The flowers appear in early summer, and are of considerable duration and succession, and have the property of hanging a long time; being brown when withered necessitates their early removal, otherwise the shrub becomes too unsightly for a lawn, but this very persistency of the blooms may, perhaps, recommend the plant to those who may be desirous of having perfectly natural aspects in the "wild garden." It is not so easy of propagation by means of cuttings as many other varieties of *Spiræa* in the open air, but is best increased by layers.

***Vitex Agnus-castus*.**—This is a useful plant in the foreground of groups, or as a solitary example in sheltered spots. Its

light feathery leafage and blue spikes of blooms which appear late in the summer months, together with its pungent, but still agreeable odour, make it quite a desirable plant. A slight protection over the roots is of advantage during such severe frosts as have been experienced this winter. It may be propagated by seed division or by cuttings of ripe wood.

Kœlreuteria when used as a lawn plant or hedge plant, for which it is well adapted when it is only meant to mark a boundary, should be cut down to a stool annually in the same way as basket Willows are treated. It will grow then according to soil and aspect from 4 ft. to 6 ft. in height, but will not produce its large bunches of yellow flowers. These can only be obtained by allowing it to grow uncut, when it will form a good half tree of a rounded contour. It is propagated by seed. SYLVESTRIS.

Berberis japonica.—Despite the late severe weather this *Berberis*, in sheltered places, is now unfolding its golden blossoms—a colour prevalent among winter and early spring flowering shrubs. Before frost set in we were cheered with the beautiful golden flowers of *Jasminum nudiflorum*, and although the opened flowers were somewhat injured, yet the buds have survived, and the plant is now in many places again covered with blossoms. Besides these *Forsythia viridissima* bids fair soon to be literally a golden bush.—ALPHA.

Podocarpus alpina and Dacrydium Franklini.—These two New Zealand Conifers have passed through the winter with but slight injury in the neighbourhood of London, and from that fact one would be inclined to think that many other New Zealand plants would survive the winter out of doors; but probably the two in question owe their immunity to the fact of their being natives of the mountainous, and therefore colder parts, as *Veronicas*, *Phormiums*, and such plants have suffered severely.—ALPHA.

The Deodar was so belauded on its first introduction, that many planted it extensively, and in warm localities and sheltered situations it is all very well, but where exposed to much wind it gets sadly cut about, and greatly disfigured by spring frosts, which affect the tender growth and frequently cripple the young shoots. If planted at all it should be in positions where it is surrounded or backed by other trees, such as groups of Scotch Firs or other Coniferæ having dark foliage, against which the silvery grey of the Deodar shows up in pleasing contrast. As a park tree, except in favoured districts, the Deodar is worthless, but *Cedrus atlantica* is so hardy as to stand any amount of cold, and so stiff in branch and limb as to be unaffected by gales. In planting this, or any other of the Coniferæ, they should have high ground, as there they may be seen to the greatest advantage. I do not mean simply on mounds, but on naturally elevated spots, with the land sweeping down from them in a bold irregular manner; these are the sites for trees, where they look at home, and give character and depth to the other surroundings.—S. D.

Ancient Cedars.—Mr. White, Arbury Hall, Nuneaton, has a notice in *THE GARDEN* (p. 290) of a Cedar of Lebanon, supposed to be about two centuries old, which was blown down during a gale from the north-east on the night of the 6th ult. We do not often have an opportunity to examine into the progress of decay in such an old Cedar tree, and perhaps some significant hints might be gathered from a careful inspection of its ancient trunk now laid prostrate. Will Mr. White kindly tell us the nature of the soil in which it grew and the condition of its timber? also to what extent the appearance of its leaves and branches indicated an unhealthy state before it fell? It is certainly remarkable that such a large tree should have stood so long without support from its main roots which Mr. White describes as being “as rotten as touchwood.”—W. B. S.

NOTES AND READINGS.

REVERTING to the subject of seed lists again, I have just been favoured with a list of the names of varieties of the different kinds of vegetables at present sold by the trade, a great proportion of which are fictitious. There is, by common consent, probably only one kind of *Asparagus* cultivated, but the catalogues give us ten kinds, which include a Late and Early Giant. Of Broad Beans there are thirty-seven, about a dozen of them being Windsors, and the remainder Longpods and Early. Probably three or four out of the lot would sum up the excellences of the whole. Kidney Beans amount to about twice the above number—between 70 and 80. Of Beetroot, the gardener has 42 sorts to select from, many of the varieties being Dell's, renamed after particular firms. There are close upon 50 sorts of greens, 18 Brussels Sprouts, without including the Aigburth, under the new name given to it last year. Broccoli

runs up to 70, and of Cabbages there are only 84, nearly one-half of which, if not two-thirds, are the old Early Battersea. There are 28 Cauliflowers, 30 Carrots, 27 Capsicums, 43 Celeries, 21 Endives, 113 Lettuces, 47 Onions, 152 Peas, 42 Radishes, 24 Savoy, 18 Spinach, 37 Tomatoes, 56 Turnips, and 15 Vegetable Marrows. The seedsman who furnished the list says there are probably many more kinds of some of the species, but those given are, he supposes, all distinct! Of 22 of the most common kinds of vegetables of the kitchen garden there are not far short of 1000 varieties, or an average of rather more than 45, and the list is being constantly added to by numbers of kinds that are no improvement on those already existing.

The revolution taking place in the style of flower gardening seems to be attracting some attention in other quarters than the gardening papers. Among other references to the subject, which one notices from time to time, the following from *The Artist*—a paper which may be supposed to look at the subject from an impartial point of view—is, perhaps, worth reading. Readers of gardening periodicals, says our contemporary, will have noted that, for some time past, there has been a reaction unfavourable to carpet gardening; it may be said, indeed, that fashion is setting in against it and in favour of “mixed borders.” A movement is going on, in fact, with reference to gardening bearing a close analogy to that which has revolutionised furnishing, and altered the complexion of carpets. Symmetry, for the moment, is at a discount, and gets called by hard names, such as formality and stiffness; bedding in masses of positive colour is being voted vulgar, and all amateur gardeners who have any claim to be considered æsthetic are going in for change.

The Artist thinks that carpet bedding and massing have their place “in the little parallelogram of ground which is allotted to a town house” and elsewhere, but acknowledges that there is a good deal to be said for the new tendency—hardy gardening.

Carpet gardening has no doubt nourished an unhealthy craving for eye stimulants, for the maximum of flower and the minimum of leaf; it has led to forgetfulness of the beauty of the general form of plants, a beauty which is independent of blossom or of colour. A seeing eye will find a feast of satisfaction in a mixed border of sufficient variety even at a time, if such be possible, when no single plant shows a blossom. Contrast of form is, perhaps, a worthier source of delight than contrast of colour; and it is this contrast of form which the mixed garden depends upon chiefly for its effects. Beside a broad-leaved Sea Lavender stands a sword-like German Iris; close by rambles the Anemone, or the Moneywort extends its strings; within a few yards are the Pink, a tuft of Stonecrop, or rosettes of Arabis, each of a different “make,” each of a different green. Without endorsing the impulsive condemnation of carpet gardening which has been expressed by Mr. Morris, we shall not be sorry if a turn of fashion leads to the love and study of plants independently of mere blossoms, and educates our eyes to appreciate the infinite beauty of form which the garden gives, as well as its riches in colour. Perhaps, too, the movement may have its influence upon our painters; and instead of gay pictures of flowers, all or nearly all blossom, a group of artists may arise who see the beauty of plant form, and will paint flower pieces with only that proportion of blossom to leaf which is found in Nature.

That the bedding-out system has “nourished an unhealthy craving for eye stimulants” is no doubt true. We do not mean to say that the system has blinded good men to the beauty or interest of other phases of gardening, but it is a fact beyond denial that it has obscured the vision of many of the mere followers of the bedding fashion. The reluctance of some people to see a less formal system of laying out our gardens, in which geometry and colour will not be the predominating features, may be traced to certain prejudices and habits that fetter people in gardening just as in other things.

Our excellent friend Mr. Wildsmith, of Heckfield, has for some time been regarded, in this battle of the “styles,” as a kind of horticultural Lord Derby, who sat on the cross benches in a transition state of mind, giving no sign; but it must now be gratifying to the lovers of hardy plants to find him beginning to utter no uncertain sound in their favour. It would have surprised those who know him best, if, after due deliberation on the debatable benches, he had disputed that “it is possible to have a gay garden most of the

year by the use of hardy plants." "No one," says Mr. Wildsmith in a contemporary, "who has experienced the immense labour of getting up a stock of tender bedding plants, and has been called upon to plant the same just at a period when other and more important work has been pressing in other departments will, I am sure, regret the advent of a reform that shall relieve them from such troubles; but the reform, I think, lies in the direction of reducing the number of beds and borders that are to be planted, and at the same time using as large an assortment as possible of hardy plants that will associate with our usual run of summer bedders (or whether or no, Mr. Wildsmith). Personally, I have for some time been working in this direction, and from general observation I find many others on the same track. The improvement, if compared with the gaudiness of bedded-out gardens that held sway but a very few years ago, must be apparent to everyone." Mr. Wildsmith will be admitted by all, we think, to know what he is talking about. As regards the cost of the two styles he has no doubt about the expense and trouble of bedding-out, and as to hardy gardening, he thinks that with the highest keeping it would only equal the others in cost, while admitting, as will be seen from the above quotation, that it is far more satisfactory and enduring, and therefore the cheapest.

A correspondent asks what the "florists" of the straiter sect will do with these single Dahlias, since they dare not make them double or big. The question, I confess, puzzled me. Unless they apply some of their Tulip rules with regard to the length of the petals, and their shape and position, &c., I do not see how they can interfere. Hitherto the "florists" have looked rather askance at the new productions, and I remember when they were exhibited at South Kensington, in the autumn of 1879, where they attracted so much attention, that a "florist" writing on Dahlias as "florists' flowers" in a contemporary just condescended to notice "a small tray in the corner" containing an interesting exhibition of flowers of the normal type, some of which were very beautiful, "but from none of which the fine florist varieties at present in cultivation were raised."

At the present time "the fine florist varieties" are almost expelled from our gardens, and are now principally grown by florists themselves and exhibitors, &c., and it is more than probable that the single kinds will drive the double ones out of the field altogether by-and-bye. But the Dahlia and Picotee, &c., "fancy" has produced far worse and more absurd results than anybody would imagine. It's quite a common practice at small horticultural and cottagers' exhibitions in rural districts to offer the most extravagant prizes for florists' flowers, and notably for Dahlias, to the neglect of far more worthy subjects. I have one of these prize schedules before me now, which is a good example of others of the same kind, and under the head of florists' flowers, £4 is offered for four stands of double Dahlias and one stand of Picotees. No larger sum is offered for seventeen single dishes of vegetables, distinct kinds, and including Cucumbers; and for fifteen sorts of fruit, in single dishes, including Grapes and Peaches, less than £5 is offered. As a rule, the entries for florists' flowers are few, and the prizes are almost invariably won by the same men. This mad arrangement is prompted, it is believed, by the idea that it is "the right thing to do," and the practice has been fostered by precept and example by the more pretentious societies and individuals connected with them. The good-natured patrons of these country exhibitions—ladies and gentlemen who are expected to subscribe their two or three guineas annually to every "horticultural and floral society" within a radius of ten miles of their residence—never, I suppose, give the subject a thought of why small gardeners and cottagers should be tempted to grow Dahlias and Picotees to the exclusion of fruit and vegetables, but it is a matter that wants looking into by all those who take an interest in the advancement of gardening among the people.

It is not too much to say that a book might be written on one section of the Orchidaceæ alone—the *Odontoglossums*. *O. Alexandræ* itself would require many pages to describe its numerous varieties! If you procure a score of imported roots it is hardly likely any two will turn out alike. All the varieties are good, but some are much better than others, and there are distinct types of beauty amongst them. One regrets they cannot be named. In

the length of the spike, colour of the flowers, breadth of the petals, and their markings the most noteworthy differences are observable. Some produce tall spikes of flowers, and some dwarf ones, but as a rule the latter show the most massive flowers, while the former have the most perfectly graceful and delicate wreaths that can be conceived. No artist has conceived or executed anything so beautifully fitted for a bridal wreath. Some spikes we have seen lately had nearly a score of pure white flowers on a spike that curved gracefully in just the right degree, forming the most superb ornament for the hair that a lady could desire. No doubt the strongest bulbs produce the most, as well as the finest flowers, but the size and shape of the spike is a characteristic of the variety. *O. Alexandræ* is undoubtedly a much better kind than *O. cirrhosum*, as well as a surer flowerer, but in some cases the single flowers of the two approach each other wonderfully near in appearance. We are assured that some plants of *cirrhosum* run constantly to foliage in the flower-spikes, and rarely or never produce good flowers. Such varieties are, of course, worthless. *O. vexillarium* we regard as a slightly over-praised variety. The flowers have colour and size; but in artistic beauty of form they fall below *O. Alexandræ* and others.

A correspondent of *Gardening* unconsciously raises a question in Potato culture that has been discussed at various times, and is of no little importance to cultivators. He found in digging his Potatoes that the diseased tubers were generally those deepest down, so that his gardener remarked "It would teach him in future not to plant his sets so deep." The crop had been planted 6 in. deep. Deep and early planting used to be a common practice, and, curious to state, Knight was an advocate of the last. "I have invariably found," he states, "that to obtain crops of Potatoes of great weight and excellence the period of planting should never be later than the beginning of March." This means that the general crop should be got in in February, a practice which perhaps no cultivator who is not located in the most favoured spots in the kingdom follows. April and May are the Potato months in most cases. It is found that very early plants seldom all come up, and often come up weak and late. As regards planting, it has been found by experiment that from 4 in. to 6 in. is the proper depth to plant; a greater or less depth sensibly reduces the weight of the crop, according to the experiments once carried out at Chiswick and at other places. Probably, too, the shallower the planting the greater the freedom from disease. It has been long observed in the case of field crops, that the upper tubers at a root, and which are little more than covered with soil, and sometimes so exposed as to get greened by the light, are usually the freest from disease. These are suggestive facts to the Potato grower.

There may be a difference of opinion regarding the propriety of digging or forking over borders full of various kinds of hardy plants, but there are surely few who would recommend such work to be done in spring, when many plants are just on the move, and pushing through the surface of the ground. A correspondent of one of the horticultural papers, who caters for amateurs, tells them to "fork over their herbaceous borders" in March. Just imagine the result of such work at a season when Snowdrops, Crocus, and bulbs and plants of many kinds are pushing or coming up. In some hardy flower borders which we examined at the end of February, a man could hardly have put his foot down anywhere without doing injury, let alone dig them. It is such thoughtless advice as this which leads the inexperienced astray, and brings discredit on the practice of the writers. Nothing more is necessary in herbaceous border culture than a cleaning of the surface of the ground and a mulching of suitable compost; but those who wish to dig their borders should do so in the autumn, when there is so much less danger of doing harm.

The *Florist* states that there are Pear trees at Chiswick that year after year demonstrate in the most forcible manner their great value as certain croppers in our climate. We do not doubt it. There are, as is well known, varieties of the Apple and Pear that hardly ever fail even in the worst seasons, and these are the kinds to plant in order to increase—probably to double or treble—our home supply. Think of that! Who will sort these out for us? Only growers of extensive collections of kinds could undertake the task, and an everlasting obligation would be conferred upon the country by them.



Stemless Palms of the Isthmus of Panama.

It is a fact that during the two past seasons, about the worst on record for fruit crops, certain kinds of Apples and Pears have borne well, and had they been planted in great proportion there would have been no scarcity of fruit.

PEREGRINE.

THE PALMS OF PANAMA AND DARIEN.

THROUGH the general character of the vegetation of Panama and Darien is well known, much remains to be done in the identification of the species of the districts explored, and many parts are yet unexplored. The late Dr. Berthold Seemann, as botanist to the expedition of H.M.S. *Herald* during the years 1845-51, found an almost virgin flora. He spent some time in that region, and collected upwards of 1200 species of plants, which were enumerated and described in the "botany" of the voyage, and contributed in a series of letters to Hooker's *Kew Journal of Botany*, an admirable sketch of the most striking features of the vegetation. Subsequently, Mr. Sutton Hayes, an American gentleman connected with the construction of the railroad across the Isthmus, spent several years in Panama, and, although in very delicate health, collected diligently all along the route of the railroad. The number of species of Palms observed or collected by Seemann amounted to about a dozen only, and Hayes did not add one to the number, yet Palms constitute the most striking feature in the vegetation of some of the river valleys, covering immense tracts to the exclusion of other arboreal or shrubby plants. It is noteworthy that only one Fan-leaved Palm (*Thrinax argentea*) has been observed in the Isthmus, and this forms underwood in the forests; whereas three or four of the pinnate-leaved species themselves form groves, as represented in the accompanying illustration.

Of the apparently stemless species the Vegetable Ivory Palm (*Phytelephas macrocarpa*) is the most important and most abundant in Darien, which is drained in part by the river Atrato. It also occurs in the Isthmus in the district of Portobello, as well as another Palm, which Dr. Seemann took to be a second species of *Phytelephas*: *Elais melanococca* is similar in habit and inhabits similar situations. The Palm represented in the accompanying illustration seems to be *Phytelephas macrocarpa*, which inhabits narrow valleys and banks of rivers, and rivulets in the coast region of western South America, between the ninth degree of north and the eighth degree of south latitude, and the seventieth and seventy-ninth of west longitude. Like the *Elais*, it does not form an erect trunk, but it is not stemless. Seemann states that the trunk is always pulled down, partly by its own weight and partly by its aerial roots, thus forming a creeping caudex, which is frequently 20 ft. long, but seldom higher than 6 ft. The top is crowned with a tuft of from twelve to twenty pinnate leaves from 18 ft. to 20 ft. long. Seemann further states that not only is it rarely associated with other trees, but even herbs seldom grow in the Ivory Palm groves, where the ground has the appearance of having been swept.

The Ivory Palm is in cultivation, and may be seen at Kew, and the numerous ornaments and toys made from the seeds will be familiar to many of the readers of THE GARDEN. This "vegetable ivory" is whiter and equally as hard as animal ivory as long as it is kept dry, but it softens in water, becoming white and hard when dried again. On the authority of Dr. Seemann, the seed at first contains a clear insipid fluid, with which travellers allay their thirst; afterwards, this same liquor becomes milky and sweet, and it changes its taste by degrees as it acquires solidity, until it becomes as hard as iron. In germination this dense albumen liquifies, and is absorbed by the young plant before it is able to take its nourishment direct from the soil.

W. B. HEMSLEY.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

THE first spring show held here this season took place on Wednesday last, and was in every way an excellent one, much more extensive, indeed, than corresponding exhibitions in past years. The exhibits were arranged in the corridor and conservatory

Botanical Certificates were awarded to the following:—

To Messrs. Veitch & Sons for—

Anthurium Andreanum.—The beautiful new South American

can Aroid, to which allusion has frequently been made in our columns.

Odontoglossum Pescatorei grandiflorum.—A superb variety, considerably larger than the ordinary kind, and with an exquisitely marked lip.

Gymnogramma schizophylla.—An elegant Fern, with long fronds cut into delicate fine segments. It is dwarf in habit, and very distinct from the other species in cultivation.

Mr. B. S. Williams, Victoria Nursery, Upper Holloway, for—

Lælia harpophylla.—A handsome variety in the way of *L. cinnabarina*, but much finer; the colour is a bright orange-red and the lip of the flower beautifully crisped.

Asplenium Saundersoni.—A graceful little South African, Spleenwort, with fronds 6 in. to 9 in. long, having roundish pinnae regularly arranged on the rachis.

Actinopteris radiata australis. A larger and handsomer plant than the type, and having fewer segments of the fronds and more pointed. It is quite a gem among Ferns.

J. D. Richards, gardener to Mr. T. A. Titley, Leeds, for

Cœlogyne cristata alba, a variety of this popular Orchid, without the yellow crest on the lips of the flowers, but pure white and chastely beautiful.

Mr. Boller, Kensal New Town, for—

Mamillaria Caput Medusæ, which forms a cone a few inches high, and thickly covered with whitish spines.

Haworthia Bollerii, a new species of small growth having the fleshy leaves arranged in a triangular manner.

Floricultural Certificates were awarded to Messrs. Veitch for—

Hyacinths Magnificence and Primrose Perfection, the former with remarkably large double flowers of a porcelain-blue colour, the latter the finest primrose-yellow kind yet obtained.

Amaryllis Mdme. Albani, a long flowered variety, crimson flaked with white; *Storr's Beauty*, brilliant crimson-scarlet, and flowers of perfect form; *Empress of India*, with ten very large flowers of an intense bright scarlet, striped with white; *Cecilia*, deep crimson tipped with white and perfect in form.

Azalea Roi Leopold alba, a white-flowered variety of a well-known and valuable *Azalea*. The flowers have here and there a stripe or spot of the cerise hue of the original.

Mr. H. B. Smith, Ealing Dean Nursery, for—

Cyclamen Queen Victoria, the finest white kind yet shown; the flowers being remarkable for their large size, substance, and fine form, as well as their purity.

Mr. J. Wiggins, Hillington Place, Uxbridge, for—

Cyclamen Ruby Gem, a contrast to the preceding, as the flowers are of an intense deep crimson, and the plants seem to be very floriferous.

Messrs. Barr & Sugden for—

Narcissus albus aureus, a large double Daffodil, with silver and gold petals blended together in a beautiful manner.

In the competing classes, *Cyclamens* were in strong force, and the prizes in the open class between Mr. Smith, of Ealing Dean Nursery, and Mr. Wiggins, Hillington Place, Uxbridge, were very closely contested. The twelve plants of the former were simply perfect, all being of large size, profusely bloomed, and well furnished with foliage; altogether, a finer dozen has rarely been seen at a London show. The pure white variety which Mr. Smith grows so well was represented by half-a-dozen superb plants. There was more diversity of colour among Mr. Wiggins' plants, but they were not so large nor so thickly flowered. A deep crimson kind was conspicuous, and contrasted finely with the pure white. Mr. Wiggins also had a fine collection in the amateurs' class far ahead of the other collections shown in the same class.

The finest *Hyacinths* came from Mr. Douglas, who had Koh-i-noor, Vurbaak, Lord Derby, Macaulay, La Grandesse, King of the Blues, Decandolle, Marie, Cavaignac. These formed a very fine and attractive group, perfect as regards size of spike and flowers, and far ahead of the other amateurs' collections.

There was only one collection of *Crocuses*, and varieties of the yellow spring *Crocuses*. Chinese *Primroses* were shown by three exhibitors. The six plants from Mr. Wiggins, who took the first prize, were finely grown, and the varieties, three white and three red, were likewise fine. Scarcely inferior to these, and superior in some points, was the collection from Messrs. Williams, Finchley, who were second. The *Azaleas* were very poorly shown, with the exception of half a dozen from Mr. Ratty, Sydenham, who was far ahead of all others in the amateur class. The plants were mushroom shaped, the varieties being Bellerophon, Marie Vervaeke, Stella Pelargonicaflora, Roi d'Holland, Madame Vander Cruysen. The nurserymen's *Azaleas* were scarcely worthy of comment. Th

only competing *Deutzias* came from Mr. Douglas, whose six plants, about 4 ft. high and 3 ft. across, were superb examples of skilful culture. The best six plants of *Amaryllis* were shown by Mr. J. Wiggins, who had four fine seedlings and *Panorama* and *Drapeau Royal*. The other collection was good, though the flowers were somewhat inferior in size and quality. *Narcissi* in pots were shown finely by Messrs. Osborn & Sons for the first prize. The twelve plants included *Grand Monarque*, *Jaune Supreme*, *Bazelman major*, *Newton*—all excellent kinds. The other collection from Mr. Douglas included *Bathurst*, *Gloriosa*, and *Newton*. The three collections of *Lily* of the Valley were neither remarkable for size of plants nor profusion of flowers. Hardy *Primulas*, a new feature in the schedule, were poorly represented as regards numbers, there being no opposition to Mr. Douglas, who had a fine half-dozen; this group consisted of two pots of *P. viscosa nivosa*, finely flowered, two pots of the new Himalayan *P. rosea*, two each of *P. denticulata*, and *P. acaulis platypetala plena*, and a plant of the Double White *Primrose*. Hardy herbaceous plants were shown only by Messrs. Osborn & Sons, who had a group of nine plants, consisting of the charming *Chionodoxa Lucilie*, *Puschkinia libanotica*, *Anemone Pulsatilla*, *Sanguisorba canadensis*, *Megasea (Saxifraga)*, *crassifolia*, *Helleborus abchasicus maculatus*, double purple *Primrose*, and *Draba cuspidata*.

For a list of the awards see our advertisement columns.

THE "JOURNAL OF HORTICULTURE."

THE amenities of journalism are now so well observed by the English press, that it is rare to notice any such ill-nature and vindictiveness as was recently shown in reference to *THE GARDEN* by an editorial note in the *Journal of Horticulture*. This harmless print usually pursues its way without ill-temper, but an Irish periodical devoted to horticulture incurred its displeasure by printing as its own a short article belonging really, as it turns out, to the *Journal*. This was quoted in *THE GARDEN*, credit being duly given to the journal in which it was seen by the sub-editor, who did not doubt that the extract was the property of the Dublin paper, from which he acknowledged it in the usual way. This incident, as regards *THE GARDEN*, is of a kind that a person having any respect for the dignity of journalism would take but slight, if any, notice of. Our own notes and paragraphs are taken often without acknowledgment by London and other journals to a far greater extent than the *Journal of Horticulture* can complain of in the case of its Irish contemporary, and although we have no reason to admire the practice, we should not, we hope, be ever guilty of seizing such a pretext for venting spite on our fellow-workers, as these editors have done. The *Court Journal*, for example, has frequently taken our matter without acknowledgment, and if we, instead of blaming that journal for this, were to seem to drag in another which had simply done what is usual and right in the matter, we should have a parallel instance.

Not even naming the *Irish Gardeners' Record*, which took the article in question, it did name *THE GARDEN* in terms that seemed to bear only one meaning to anyone connected with the profession, one of them being this:—

The curious example of literary patchwork referred to is too obscure to be named, but when it is made the medium for purveying stolen property to a paper of greater pretensions, it is time for us to interfere and to put the gardening public on their guard against such unworthy tricks.

Our solicitors having applied for an apology for this language, it was refused, on the ground that the article did not refer to *THE GARDEN*! Advised by counsel that the note was libellous, we took legal proceedings. In court the defendant used the same plea that the terms had not and were not meant to have any reference to *THE GARDEN* or its proprietor. His counsel urged the same plea, and the jury found for the defendants on it.

Be it so; but as the editors of the *Journal of Horticulture* made statements which to many in the profession seemed to have a particular and injurious application, we propose henceforward, as occasion may demand, to notice their doings frankly and truthfully and to discuss by what rights, editorial, managerial, or academic, these gentlemen comment on others who have never interfered with them except in the sense of doing work better appreciated by the public.

And now only of one expression used by the *Journal* in the paragraph that it declared to refer solely to the Irish paper. It spoke of "filling dear pages cheaply," words probably not meant for the Irish paper, which was cheaper than the *Journal*. Imagine editors using the above expression whose paper in the last issue before us (March 17) is filled with four large engravings from a hot-house builder's catalogue, accompanied by the builder's own estimate of his goods—cuts, be it observed, lent or given gratis by their owner. Any material of this sort is welcome to the *Journal* to take the place of engravings which are costly and troublesome. It is as if a bedraggled London sparrow were to charge a gold-

finch with being careless in its dress and having preferred some of the said sparrow's plumes to its own.

The real meaning of all this ill-feeling on the part of the *Journal* is the existence and success of *THE GARDEN*. Worst of all, *THE GARDEN*, though appealing to a more special class of horticulturists only, now surpasses the *Journal* in circulation. Long after it became established; long after Canon Hole, the late James Veitch, Peter Henderson of New York, O. Wendell Holmes of Boston, J. Linden of Brussels, Charles Moore of Sydney, Robert Marnock and many of the leading horticulturists throughout the world had sent words of approval and sympathy to us, Dr. Hogg, then pomological director, &c., of the Royal Horticultural Society, co-editor of the *Journal*, and one of the defendants in this case, would not allow *THE GARDEN* to be taken at Chiswick for the young men's reading or for the office! Such was the noble action of the man with the many long additions to his name. We have heard before now of men who sacrificed their self-interest for their profession, but this incident may, perhaps, serve to show young men what they may expect if they take an independent course, though, it is to be hoped, not from all the elders of their profession with a reputation for science and philanthropy.

School of Gardening.—The Crystal Palace Company propose to establish at Sydenham a school of gardening, in connection with their school of science, art, and literature. It is to embrace instruction in landscape gardening under Mr. Milner, called division I, and practical gardening under the direction of Mr. W. G. Head, the superintendent of the horticultural department of the Crystal Palace, called division II. In the first division the course is of two years, and is inclusive of instruction in division II (practical gardening and horticulture), which work is an essential part of studentship in landscape gardening. The course is divided thus: six months' work in division II.; six months' surveying and office work; twelve months' practical professional work. During the year seven weeks will be allowed as holiday, but such holiday will be fixed, as to time, in the absolute discretion of the principal. The fee for the course of two years is £110; for the first year's course, £60; for the second year's course, £60. All fees are payable in advance. In division II, the course is of one year; but students may, if they choose, stop one or two additional years, but not more than three years altogether, under the conditions. The course is continuous from date of entry. During the year four weeks will be allowed as holiday, but such holiday will be fixed as to time, in the absolute discretion of the Superintendent. The instruction comprises all that can be learnt systematically from the work necessary for the proper keeping of the Crystal Palace interior gardens, the exterior gardens, the park, &c., as well as the care of the heating appliances, &c. On appointed evenings special lectures and demonstrations are given on practical operations in horticulture. For instance—relating to particular plants or races of plants, mode of cultivation, hybridisation or propagating, grafting, &c., &c.; lectures on botany, the classification and division, &c., of plants, their distribution, &c., but particularly those features of the science that are capable of practical application. Students in this division are subject to the same regulations as the men employed in the garden department, exterior and interior of the Company; they keep the same hours and are absolutely under the orders, during business, of the superintendent of the garden department for the time being, or his proper representative; they are, in fact, rated under the same conditions as the other men employed (except as regard to holiday), and are amenable to direction for work and instruction at the discretion of the superintendent. The premium for a student is £30 for the year, payable in advance. While he attends for work each student serving his course in this division will receive as wages: 1st year, 10s. per week; 2nd year, 15s. per week; 3rd year, £1 1s. per week.

LATE NOTES AND QUESTIONS.

Ice Houses.—Will any of your correspondents kindly give me an idea of the best method of building an ice house capable of holding from 500 to 600 tons? also its probable cost? The situation is on the banks of the Menai Straits.—E. R.

Meconopsis Wallichiana.—M. M. K.—Iry Mr. Thompson, Tavern Street, Ipswich.

Names of Camellias.—Can anyone tell me the derivation of the names *Valtevedra* and *Mathotiana*?—J.

Raised Edgings.—J. S.—*Echeveria glauca* will probably answer your purpose.

Musa Ensete.—I have a large plant of *Musa Ensete*. How can I get a few young ones off it?—CONSTANT READER.

Names of Plants.—H. W. W.—*Omphalodes verna*.—M. R. J. I.—*Todea barbara*.—T. Campbell.—*Adiantum athiopium*.—S. Collier.—*Helleborus viridis*.—F. W. Burt.—*Aucuba japonica* (seed bearing form).—G. J.—1, *Ophrys lutea*; 2, *O. aranifera*; 3, *O. fusca*; 4, *O. Speculum* var.—C. L.—The popular name of the *Primrose* you send is Jack-in-the-Green.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

A LONDON MARKET GARDENER IN PARIS.

To visit Covent Garden at an early hour in the morning, to note the amount of French vegetables and fruit that find their way there, to take note also of their quality and the early season at which they arrive, to understand the evident preference of the London greengrocer for anything French, before native produce, would furnish reasons enough why one, whose interests and prospects are somewhat bound up in market gardening, should visit the place whence a great portion of this supply comes. The Englishman who, in visiting the Parisian market gardens, expects to find anything analogous to the large tracts of land, half reclaimed from farming semi-culture, half built in by the ever-encroaching sea of bricks and mortar so familiar to him in the market gardening districts of suburban London, will be disappointed. He will look in vain for the Fulham, Isleworth, or Deptford of Paris, nor will he meet with better success if he looks for that mixed type of workmen—the market gardener's labourers. The *Marâtcher de Paris* is his own labourer, if we except his wife and children (if he has them), and in a few instances one or two labourers who are themselves growers on a smaller scale than their employers. Of all the classes that make up the population of the gay capital, the market gardeners are the most industrious, sober, and thrifty. With no Sabbath day's rest, and but one holiday a year (the 30th July, St. Fiacre's, the patron saint), they toil on from day to day without intermission, taking their produce to market, selling it, and returning to work; often getting the only sleep they know for weeks as their springless cart rumbles along the stony road towards the *Halles Centrales*. Everywhere I found them the very personification of politeness and good-will, willing to *parler très doucement*, and to tell those about them to do so too, for the benefit of one like myself, whose French is rather scanty; even though avowing at the first introduction, that the object of my visit was to learn with a view to practise, and if possible compete, yet they were anxious to explain their system of cropping, its reasons, advantages, and disadvantages, and the proportions of profit from the various crops, taking immense pains with gesture and repetition to make themselves understood. It was impossible to help contrasting this reception by the blouse-dressed, *sabot*-shod peasant before me with what in all probability would have been one's reception on a like errand by many a well-to-do English market gardener. A peculiarity, and perhaps no small factor in the success of Parisian market gardening, is the devotion in localities, and among individuals, to specialities, thus: Argenteuil to Asparagus culture, Arcueil to Mushrooms, Clamart to Strawberries, Montreuil to Peaches, Vaugirard and Grenelle to salad and ordinary vegetables, &c. Of course no hard and fast line can be drawn; in all localities one sees scattered a few solitary proprietors, who from want of capital or industry, have failed to keep pace with their neighbours, but still devote themselves to the growth of the commonplace vegetables, trusting to Nature to mature them.

At Argenteuil I received a hearty reception from M. Godefroy-Lebeuf, the chief Asparagus grower of the district, who greatly surprised me by his readiness to give information, expecting, as I did, to encounter reticence and an

unwillingness to disclose trade secrets to a foreigner. In Asparagus culture the French are many strides in advance of us, despite the disadvantages arising from the system of *petite culture*, on account of which "fields" are unknown; at Argenteuil the sides of two gently sloping hills, one on either side of the town, are cut up into small patches, few of which would compare for a moment with an ordinary English allotment; doubtless the alternations of Vine, Fig, and Pea, of bare Asparagus ground, and standard fruit trees are pleasing to the eyes of an artist in summer, but a London market gardener, lamenting the splitting up and scattering in small parcels, by the ruthless hand of builder, of the land that ought to be in compact farms, feels these to be disadvantages that go far to minimise the tremendous advantages derived from the Parisian climate, and he comes away in no mood to support modern ideas of peasant proprietorship.

Asparagus Culture.

The system of Asparagus culture adopted is widely different from the English plan. The plants are planted from 3 ft. to 4 ft. apart in shallow trenches, 8 in. or 9 in. deep, and the same distance apart as the plants; care is taken not to lay the plant down sideways, but to spread the roots out all around so that the crown lies flat, as it is expected to grow; for the first year, sufficient mould is pulled in just to cover the crown, and the alleys are cropped as usual. In the summer when the haulm grows high, a strong stick is inserted near each plant, to which the haulm is tied to prevent the wind waving it about and so damaging the formation of the young crowns for the next season. A little mould is added each year, till the third year, when the Asparagus is fit for cutting, and all the mould in the alley is put on the row, generally in little mounds, over each plant to the depth of 6 in. or 7 in. The cutting is done with smooth-edged knives, care being taken to take the bud out close to the crown, that the old stump may not, as in England, interfere with the growth of the new buds. Every piece of Asparagus I saw exemplified the rule of M. Lebeuf, that it wants air, and must be kept entirely free from weeds, a rule not entirely understood, I fear, among us. It will be seen that in this there is an extensive use of skilled and intelligent hand labour, and it is difficult to see how the system can be carried out with the same perfection in England where large breadths are grown; labour is so expensive, and dependence would have to be placed upon labourers, who seem imbued with the idea that they are paid to do as little as they can with their hands and feet, and nothing with their heads. It is here that the small proprietorship comes in with many advantages to France. However, we must get out of the old rut somehow if we are in this matter to hold our own.

Cave System of Growing Mushrooms.

Whatever may be the prospects of the practical application in England of the principles of Asparagus culture now in vogue among the Parisian market gardeners, the case is perhaps different with the Mushrooms of Arcueil; there it would seem an ingenious adaptation of a special geological formation has made the French masters of the situation. It will probably be universally conceded that to find in the vicinity of London miles of disused stone quarries, which, by being built over at the top, form galleries 20 ft. or 30 ft. below the surface of the ground, dark, and with a temperature several degrees warmer than that above, would be a difficult problem. I was warned in Paris that my favourable experiences of French politeness would there receive a rude shock; that I would find the "champignonists" of Arcueil jealous of the secrets of their calling, and unwilling to unlock the "doors" of their caves or caverns to an inquiring foreigner; notwithstanding, I determined to

try. On arriving at Arcueil one is prepared to find some unusual industry carried on; the large tracts of undulating ground, uncultivated and unfenced, covered with a scant growth of Grass and weeds, with, dotted here and there, peculiar wooden air-shafts, looking like dismantled windmills, make up a picture of desolateness and neglect that is unique in the neighbourhood of Paris; one's first impression on alighting at the station is that the place is ownerless. Scrambling along the muddy track, that did service for a pathway from the station, I struck the road in which was the house of the "champignonist" to whom I had been directed. Behind the neatly-kept house and garden was a yard with some heaps of hot manure being turned by several men, one of whom was the proprietor. On reading my introduction he politely expressed his willingness to help me, and explained the mode of preparing the manure (the same as amongst us); he then led me to a door in the middle of the yard that apparently opened into nothing, and forcibly reminded me of the "Arabian Nights." When this door was opened there came out a rush of confined air, laden with the musty smell of Mushroom spawn, bringing the conviction that a stay below to be pleasant would have to be short. On a shelf just inside were some small spirit-lamps, fixed to straight wooden handles about 1 ft. long, two of which Monsieur lighted; taking one for himself and giving one to me, he bade me follow him down a steep incline, damp and slippery, from the water trickling down the walls on both sides. At the bottom of the incline, which terminated in some steps, was a chamber about 10 ft. square, from which branched off galleries about 6 ft. wide, to all appearance winding like a maze in all directions. In each gallery there were three beds, one against each wall and one in the middle, of the usual conical form, though only about 18 in. or 2 ft. high, cased with the white dust of the pulverised stone, which I concluded, together with the perfect darkness and the absence of any covering over them, serves to give the Paris Mushrooms the beautiful white skins for which they are so remarkable. Never before have I seen Mushrooms growing so thickly; they were literally on the top of one another, making it a difficult performance to step between the beds without knocking some off. I do not know how far the galleries belonging to my guide extended, a few moments in the close atmosphere of the caverns being enough for me. I have already said that the French grower possesses thus such natural advantages as to practically place him out of the reach of competition from [this side of the Channel; yet it seems a matter worth considering whether many of our disused chalk and gravel pits that now disfigure many a pleasant landscape, and contribute their quota to the annual roll of accidental deaths, might not, though widely scattered and covering small areas, by the expenditure of a little capital and ingenuity, be turned to some account in this way. As things go now-a-days we can afford to let nothing in this small island of ours remain unremunerative that can be made use of.

Strawberry Forcing at Clamart.

From what I saw of the Strawberry forcing at Clamart, I am inclined to believe that in this the French are not nearly so much advanced as they are in other departments of culture; only one sort appeared to be grown, the Princess Royal, and the grower I visited expressed much surprise at learning the number of varieties grown in England. I was astonished to find that at present no Russia mats had apparently found their way among the French cultivators; wherever there was covering to be done at all the places I visited, it was done by means of home-made mats, formed of small handfuls of straw about 3 ft. long, fastened together at the two outsides by fine string, often to the length of 7 ft. or 8 ft. On several occa-

sions I mentioned the Russia mats and their prices, but they were evidently quite unknown. A remarkable feature in this Strawberry forcing was the economy of room—for instance, a garden of about an acre in extent was covered almost entirely with lights and boxes (no houses being used at Clamart for forcing), not placed 3 ft. or 4 ft. apart in the ranges on trenches of manure, as in England, but within 18 in. or 2 ft. of one another, on a level bed or plateau of manure. The plants were in pots and plunged; they looked very healthy, and the cleanliness was scrupulous. The season when I saw them (February) they were just showing bloom.

The London market gardener finds little to remind him of home in the places just mentioned; situated for the most part a few miles outside Paris, they have an air of security and fixity of tenure so lamentably wanting about the gardens that surround him at home. At Argenteuil the mingling of the Vine and Fig with more ordinary fruits and vegetables; at Arcueil, the unique character of the industry carried on; and at Clamart, the well-walled gardens forming part of the town itself—not outside it—are all features that make it difficult for him to realise that he is among members of his own fraternity; but at Vaugirard or Grenelle this strangeness is somewhat lessened; there he sees Cabbage, Corn-Salad, Lettuces, Onions, Leeks, Spinach, &c., growing, though in comparatively small patches. There, too, he finds the builder at work, and he notices evidences of a sort of migratory impulse, an air of falling greatness, which is strongly impressed as he views the tumble-down erections of some gardeners not their own landlords, as compared with those of the ones who have purchased their gardens.

The Section System of Cropping.

The gardens at Vaugirard are principally along both sides of one long street, seldom more than two acres in extent, generally smaller—walled in by rude walls 3 ft. or 4 ft. high, sometimes rising to 5 ft. or 6 ft., against the road. In a corner near the road is the dwelling house with the copious litter stacks and manure heaps. The most conspicuous object in almost every garden was the large, round water tank, raised 12 ft. or 15 ft. from the ground, and supported on a strong brick pier, to which water is raised by means of horse or steam power, which, with pipes laid on and hose, enables the proprietor to water *à la lance*, as it is called, the whole of the garden in a few minutes. Those I visited, and they were typical, were divided into equal sections, to fit the amount of lights and boxes and cloches (bell-glasses) possessed by the cultivator; each section in turn is covered by the glass.

The section under glass in February was the Cabbage Lettuces now seen in Covent Garden; a plateau of manure about 2 ft. high had been made up, and the ranges put on scarcely 18 in. apart. A late sowing of Carrots was coming up among the Lettuces, and the cultivator was preparing for the plateau on the next section that the glass might be shifted there ready for Melons. In one part the Lettuces had been cleared off and the boxes sown with Turnips, not broadcast, but dibbed, a pinch of seed in a hole, 4 in. or 5 in. apart; they were getting into rough leaf, and ready for the lights to be removed. When the last sowing of Carrots comes off the manure will be dug in ready for some winter crop, and next season's Lettuce plateau put on the section where Spinach or corn salad has been this winter. The Cos Lettuces that will soon be in the market were growing under the cloches on beds of mould 3 ft. wide, with 1-ft. alleys, on another plateau of manure; the Lettuces were planted three rows on each bed the diameter of a cloche apart each way; a second planting, a week or so later, was put, one plant between each of those in the rows, and subsequently a third

will be planted between the rows. A cloche is put over each plant in the first instance, and removed to the second when that is ready for market, and to the third when the second is ready. In some lights, where hot water had been laid on, were some Carrots fit for bunching, and some Cucumbers and Melons were already potted to take their places.

The above is a brief outline of the idea I gathered of what might be called the "section system," from its description to me in a language I, unfortunately, but partially understand, and impressions thus formed are apt to be erroneous. I therefore do not put it forward dogmatically, but merely as what I gathered from what was told me, and from what I saw in the various gardens which I visited. The undoubted excellence that the Parisian market gardeners have attained in the growing of vegetables and fruits may, after allowing for the equable climate, be principally attributed to the large amount of glass in use, and the admirable system adopted for making the most use of it, the preference for doing a few things well, rather than many slovenly, and the advantages always to be gained in quality where a small area is cultivated and worked by the proprietor and his family alone. How much of these French methods can, with profit, be employed in England remains to be seen; one thing is certain, that in dealing with a dry climate the French have a much easier task to supply Nature's deficiency of water than we have in counteracting the effects of superabundance.

W. G. L.

NOTES OF THE WEEK.

New Butterwort (*Pinguicula caudata*).—This is an exquisite little plant, quite a gem in its way, and distinct from any of the other cultivated species; though it has been long known to botanists, it has only recently found its way into cultivation, having been imported from Mexico, its native country. The leaves, as in the other species, are fleshy, narrow, with rounded points, and are arranged in a dense rosette, their tips slightly incurving. The flowers are borne singly on erect stalks about 6 in. high, produced from the centre of the tuft of leaves, and about 1 in. across, with a projecting tail-like spur behind, which gives rise to its specific name. Their colour is a rich deep carmine, prettily mottled with a deep shade of the same, and there is a conspicuous white centre or eye which seems to heighten the beauty of the carmine. As regards colour, this species is unique among cultivated *Pinguiculas*, and should it prove hardy it will rank among the loveliest open-air flowers, for we know no colour so clear and pleasing. It may be seen in the porch adjoining the Orchid houses at Kew, in company with both tender and hardy kinds.

Cantua dependens.—Some glorious flowering sprays of this lovely Chilean shrub have been sent to us by Mr. Green, gardener to Sir George Macleay, Bart., Pendell Court, Bletchingley, showing how well it succeeds there planted in free soil and trained to the back wall of a narrow three-quarter span-roofed house, in which the temperature is cool and moderately moist—just the atmosphere to suit this description of plant. It is here, where *Bomareas*, *Brugmansias*, several *Melastomads*, and similar subjects flourish so finely, and it is a house that could be imitated in every garden, and that costs but little to maintain it. To many this *Cantua* is too well known to need description, but for the benefit of those who do not know it we may add that it is a shrub of low and somewhat straggling growth, having small leaves coarsely toothed. Its flowers are produced in loose clusters on the ends of the slender twigs, and are 3 in. in length, the tube two-thirds of its length being rich orange-red, longitudinally marked with conspicuous stripes; the petals, five in number, are a lovely bright magenta. It is one of the numerous plants introduced by Messrs. Veitch, and is without doubt one of the most desirable to cultivate, and though it has the reputation of being difficult to manage, it well repays any care and attention that may be bestowed on it.

Improvements at Kew.—One of these is the re-modelling of the parterre in front of the Palm house, which used to be small beds margined by Box and surrounded by gravel paths. Now the whole has been turfed over and some simple beds—very few compared with the former number—have been cut in the turf, which will not only show the bedding plants off to greater advantage, but

the whole plot will have a better appearance than when all was colour and gravel. The other alteration is being effected just outside the principal entrance. The plot of ground in front of the old Hanoverian house, now the Royal Herbarium, which projected some distance on to the Green, is being removed, and a palisade, separating the Herbarium from the road, is being built a few yards from the front of the building. This will allow the main road to the main entrance to be quite straight, and will, therefore, do away with the ugly bend which skirted the projection in question, and the entrance lodge, so long an eyesore, will likewise be removed. This will be a great improvement, and will give a better character to the entrance as well as make it more easy of access for wheeled traffic.

Hyacinths and Tulips at Fulham.—At the present time there is an exceptionally fine display of Dutch bulbous plants in Messrs. Osborn and Son's nursery at Fulham, better than has been for years, the collection being not only extensive, but particularly well grown. The Hyacinths, which number some hundreds of plants, include all the best of the older and most of the newer kinds, as well as several not yet in commerce. Amongst the most noteworthy of the newer sorts are Lord Mayo, single, deep purple-blue with white centre; spike large; Princess Louise, double, deep rose; Frederick the Great, similar in colour; Prince Albert Victor, single, rich deep rose; Lord Shaftesbury, white, very large single flower and spike; Von Schiller, one of the finest single rose tints; Czar Peter, single, porcelain blue, very fine; Charles Dickens, single, red, the deepest shades of any; Gambetta, single, red. These are but a few of the many fine sorts in flower, but all those named are first-rate and excellent for exhibition purposes. The Tulips and Narcissi are likewise equally fine. We may mention that to Messrs. Osborn were awarded the principal prizes for bulbs at the last spring show at Regent's Park. Their collection of Hyacinths comprised Lord Macaulay, Gigantea, King of the Blues, Czar Peter, Grand Lilas, General Havelock, Grandeur à Merveille, Koh-i-Noor, and Princess Mary of Cambridge, all shown with large and finely developed spikes.

Clanthus Dampieri.—We understand that an exceptionally well flowered specimen of this fine Australian plant is now in perfection in Messrs. Carter & Co.'s nursery, at Forest Hill. It is a matter of regret that a plant so beautiful as this is should be so seldom seen in good condition, a circumstance doubtless owing to its having the reputation of being difficult to cultivate successfully. Now and then, however, we hear the existence of fine examples of it, and in such cases success has in general been attributed to planting out in good soil, and bestowing due attention upon the plant as regards watering, &c. Its culture is well worth attention on account of its beauty, the scarlet black-bosomed blossoms being so superior to those of its more common and less fastidious congener *C. puniceus*.

The Cape Pond Weed in Devon.—In answer to your wish to see specimens of choice hardy flowers, I send you a few blooms of *Aponogeton distachyon*. They were gathered from an open tank in the garden where there is no shelter; in fact, they are in the centre of the garden, away from all buildings or other kind of shelter. We are picking or plucking (for we take the flower by the head and pull it away from the plant, from which it parts readily) dozens every day or so for house decoration. We have three tanks of them here; they are about 15 in. or so deep, with a very small quantity of water flowing through them. We are having now 2° or 3° of frost every morning, but most of the blooms are not hurt in the least. On January 26 we had 20° of frost in the morning followed by thaw, and in three or four days we could pick a few blooms; so what could be more useful? All leaves and flowers actually in the ice where killed or damaged. It is a plant that certainly deserves more attention than it receives at present. The plants first placed in the tanks were in a tub, and they have filled the tanks by seeding so freely, which every bloom will do if not picked.—F. GUSON, *Exeter*.

The Cape Anemone (*A. capensis*).—For the first sight of this extremely rare plant we are indebted to Mr. Green, who has succeeded in flowering it in Sir G. Macleay's garden at Pendell Court, Bletchingley. It is very distinct from the Windflowers of our northern climes, yet anyone could recognise it as an *Anemone* at a glance. It is a very handsome plant of perennial growth, with stems half shrubby at the base. The leaves are evergreen, of firm texture, and beautifully divided into numerous sharply toothed segments. The flower-stems, which are stout and erect, rise from 1 ft. to 1½ ft. above the foliage, and each bears a flower 3 in. in diameter, composed of numerous narrow petals arranged in three rows, the inner pure white, the outer tinged with violet-purple; in the centre is a cone of orange-yellow stamens and pistils, which contrasts finely with the petals. The flowers expand widely in the daytime, but close towards evening. The roots more resemble those

of a Clematis than an Anemone, and form a sort of connecting link between the two genera. It is an old introduction, but, like many other Cape plants, has become very rare, and probably the Pendell Court plant is unique in this country. It has several synonyms, the chief being *Pulsatilla africana*, *Atragene capensis*, and *Clematis capensis*.

Acacias at Kew.—The noble specimens of *Acacia* now in full beauty in the temperate house are of themselves worth a visit to see, for not even in their native habitats could they be seen to such advantage as here, with their roots unrestricted in pots or tubs. The more conspicuous of the larger specimens just now in full bloom are, *A. longifolia mucronata*, quite a miniature mountain of sulphur coloured blossoms; *A. Riceana*, with gracefully pendulous, slender twigs laden with clear yellow tassels of bloom; and *A. verticillata*, also a pale yellow kind, but with very deep green spiny foliage, which helps to set off the blossoms to advantage. An exceptionally fine example of this is in one of the octagons, while later on *A. armata*, *A. pulchella*, and several others will form a regular succession to those now in perfection. On the side benches are hosts of smaller plants in flower. In the greenhouse (No. 4) *A. Drummondii* and *A. lineata*, two of the very best, are in perfection; the latter especially may truly be said to be a fountain of bloom, as the long slender flower-laden branches gracefully arch over the sides of the pot.

Hooded Fumitory (*Dicentra cucullaria*). This is an interesting plant with graceful Fern-like foliage of a glaucous green hue,



Dicentra cucullaria.

growing about 6 in. high. The flower-stalks overtop the foliage, and bear several curiously-spurred white blossoms. It delights in half-shady nooks among dwarf plants in light peaty soil, and will become naturalised like other *Dicentras* if not allowed to be over-run by coarser-growing subjects. It seldom succeeds well in a bare border, being very susceptible of excessive drought or wet. It is a native of North America, and is, from the peculiar shape of the flowers, known popularly by the name of Dutchman's Breeches. It is now flowering beautifully in the Hale Farm Nurseries, Tottenham.

Rhododendron præcox and dahuricum.—These were beautifully in flower at Kew until cut by the frost last week. *R. præcox* bears medium-sized flowers of a light, rosy-lilac colour, while those of *R. dahuricum* are much smaller, but bright purple. These two dwarf *Rhododendrons* are also useful for conservatory decoration, as in order to have them in flower now all that is requisite is to keep them protected from frost, while if slightly forced they can be had in flower much earlier.—A.

Mr. Day's Orchids.—The first portion of this celebrated collection was disposed of last week at Stevens' rooms. The total amount derived from the two days' sale of 700 lots was £1847 7s.; some of the rarer kinds fetched high prices, the following being a few of the more remarkable, viz.: *Cypripedium Stonei platyanium*, strong plant, 140 guineas; *Cœlogyne cristata Lemoniana*, £34 13s.; *Aerides Schroederi*, £31 10s.; *Cattleya exoniensis*, £23 2s.; *C. Bluntii*

(pure white variety of *C. Mendelli*), extremely rare, two plants, £44 2s. and £17 17s.; *C. Mendelli*, £11 11s.; *C. labiata* (true autumn variety), £23 2s.; *Aerides Lobbi*, £19 19s.; *Cypripedium Spicerianum*, £26 5s.; *Angræcum Ellisi* (eight leaves), £10 10s.; *Aerides affine majus*, £11; *Lælia elegans alba*, £23 2s.; *L. elegans cuspatha*, £16 5s.; *Calanthe Textori* (rare), £10 10s.; *Odontoglossum pulchellum majus*, £8 18s.; *Masdevallia velifera*, £9 9s.; *Lælia anceps rosea*, £9 10s.; *Odontoglossum nævium*, £11 11s.

New Spiral Mignonette.—Mr. Pledger, Woodcote House, Epsom, has sent us some fine spikes of Miles' Mignonette, which well show how superior it is, as regards free flowering and robustness of growth, to ordinary Mignonette. Our correspondent says that he has about fifty potfuls of it, seven plants being in each 8½-in. pot. One of the spikes sent, of which there are twenty in each pot, has 6 in. of its length thickly furnished with large blossoms, the perfume of which is considerably stronger than that of the ordinary kind.

Daphne Blagayana.—This exquisite little evergreen alpine shrub is again slowly expanding its delicate white clusters of blossoms on the rockery at Kew. Their agreeable perfume, resembling that of Orange blossoms, but more powerful, adds considerably to the value of this charming shrub, and suggests how desirable it would be for pot culture. It is naturally dwarf in growth, and its only drawback is its somewhat straggling habit. It is, we fear, as yet rare, but it is in the hands of nurserymen, and last year Messrs. Veitch were awarded a first-class certificate for it when they exhibited it at South Kensington. It is perfectly hardy, and does not appear at all fastidious as to the soil or situation in which it is grown. It may be readily propagated by layers. A coloured plate of it was given in THE GARDEN (Vol. XIV., p. 200), associated with the exquisite little *Anemone blanda*, the delicate tint of which harmonises admirably with the creamy-white of the *Daphne*.

Narcissus calathinus.—This extremely rare species is now flowering in Mr. Stevens' garden at Byfleet. Its flowers are pale yellow and very beautiful; the segments reflex like a *Cyclamen*, and the cup is globose and slightly lobed. This species is not only rare in gardens, but is only found wild in two localities, one on the island of Drenee, the other on the coast of Brittany. It is rather a difficult plant to manage, and we fear it will never live a very long time under cultivation.

New Zephyr Flower (*Zephyranthes Treatia*).—This new North American bulbous plant may now be seen in flower in one of the divisions of the T range at Kew. It resembles the *Atamasco Lily* in the flowers, but differs considerably in the foliage, which is very narrow and Grass-like. The blossoms are 4 in. across, pure white, with reflexing segments; they are borne on stout erect stalks 6 in. high. It is quite as hardy as the *Atamasco Lily*, but, like it, succeeds best when afforded a little protection.

Mexican Orange Flower as Standards.—In a nursery at Fulham, one of the establishments of the General Horticultural Company, we lately saw some fine examples in flower of *Choisya ternata*, grown as standards with Mushroom-shaped tops, about 5 ft. high. The deep evergreen foliage and the clusters of white orange blossom-like flowers render the plant highly effective, and especially valuable for floral decoration. For a Mexican plant it is very hardy, as we have lately seen specimens of it that withstood the late severe winters uninjured with only the protection of a wall.

Anthurium Palmeri.—This is one of the large spathed varieties of *A. Scherzerianum*, of which A. Wardi is the largest; *A. Palmeri* is remarkable not so much for the breadth of the spathe as its great length, which is nearly 6 in., and therefore even a few spathes on a plant make a fine display. It is now in fine flowering condition in the Royal Exotic Nursery, Chelsea.

Double-flowered Thalictrum anemonoides.—Flowering sprays of this pretty herbaceous plant have been sent to us from Messrs. Rodger, McClelland, and Co., of Newry. The flowers are perfectly double, forming miniature, pure white rosettes, encircled by the delicate foliage. It grows about 6 in. high, and is perfectly hardy, though the flowers sent had been picked from plants in a cold house.

Boronia megastigma.—A houseful of this deliciously fragrant shrub at Messrs. Veitch's, at Chelsea, is now one of the most noteworthy features in that nursery. The exquisite perfume of the tiny bell-like flowers, produced in profusion on the elegant, slender twigs, amply compensates for their somewhat dull chocolate colour. It is a plant that should be grown by every one, its culture being easy in any ordinary greenhouse, and the fragrance of even one plant is sufficient to pervade a large room.

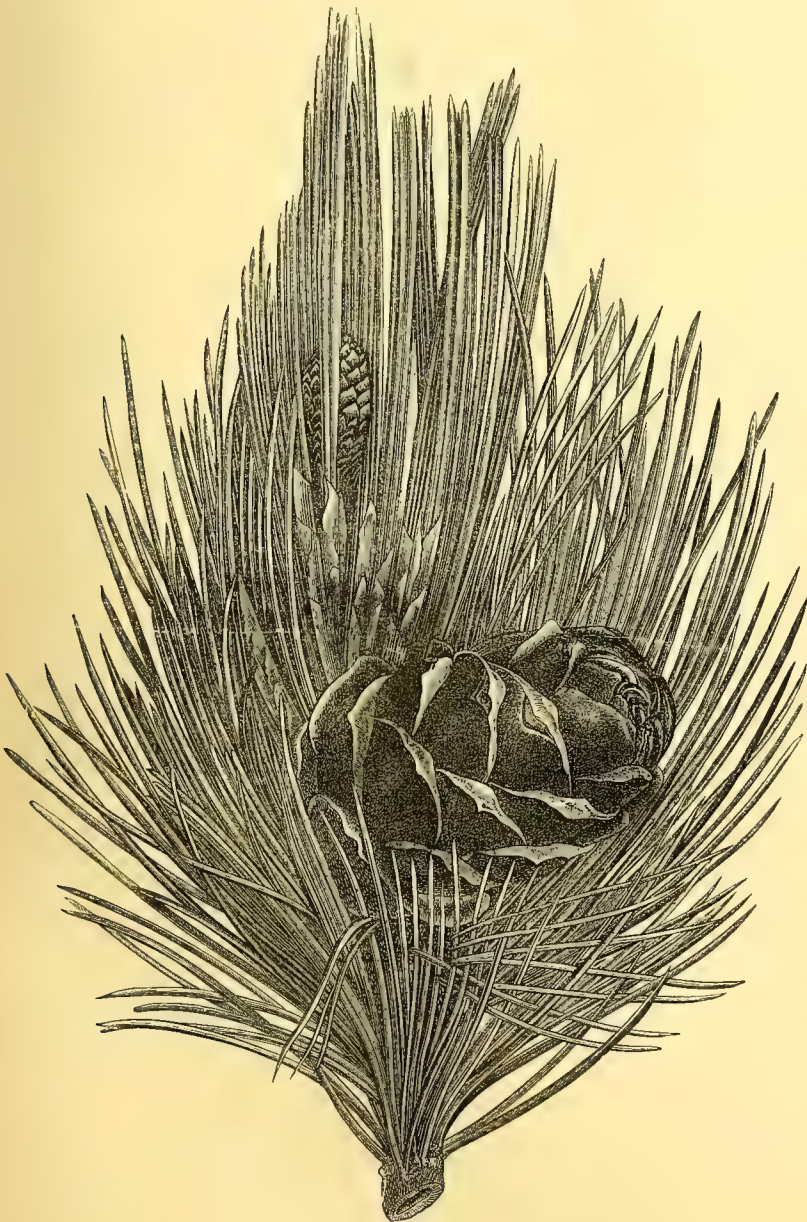
Acer rubrum.—This tree forms a beautiful object just now, the still leafless branches being covered with clusters of small, but bright red blossoms, which, among other trees still winter-like, are very conspicuous.—ALPHA.

TREES, SHRUBS, AND WOODLANDS.

THE SWISS STONE PINE.

(PINUS CEMBRA)

THIS Pine is common all over the Alps and Carpathian Mountains, and its varieties, *sibirica* and *pumila*, are to be found in various parts of Siberia. In its native habitats it varies from an erect tree

Cone-bearing branch of *Pinus Cembra*.

of from 50 ft. to 80 ft. in height to a low, scrubby, spreading bush found on the Siberian Mountains, where scarcely any other vegetation grows. With us it forms a beautiful pyramidal tree, and when standing singly well furnished to the ground with branches densely covered with foliage. The leaves, which are in clusters of five, have, when examined, rather a peculiar appearance, being very decidedly three-ribbed, two of which are whitish, while the remaining one is green. This peculiarity gives to the tree a greyish-green hue, and renders it easily distinguished from all others, except, perhaps, *Pinus Strobus* or *monticola*. Its branches are, however, shorter, and

it is closer in habit than either of the two just named. As a forest tree it is not much planted in consequence of its slowness of growth and the fact that it never attains a large size in this country, but its timber, although small, is much sought after, as it is soft, easily worked, and yet durable. Of the wood of this most of the thousand-and-one toys imported in such numbers from Switzerland are made. The Swiss Stone Pine succeeds in almost any position, however bleak, but under such circumstances it grows much more slowly than in sheltered places and in good deep soil. Its very distinct-looking cones are from 3 in. to 4 in. long and from 2 in. to 2½ in. broad, and when young are of a beautiful violet colour, changing to brown when ripe. The nut-like, wingless seeds are much sought after and eaten in Switzerland; these seeds are the largest of any European Pine, except the Stone Pine (*Pinus Pinca*), to which they bear some resemblance. Of its varieties the most distinct is *sibirica*, a kind in which the leaves are much greener and the habit denser than in the type; *P. Cembra pygmaea*, another variety, varies a good deal in appearance according to the situation in which it grows; for instance, on exposed rocks it is quite a creeping plant, while in sheltered valleys it reaches 10 ft. or 15 ft. in height. In this country it is one of the prettiest of dwarf Conifers, the colour being very pleasing, and the plant in no ways scrubby, but dwarf and sturdy. There is also a variegated variety, but, in common with most variegated conifers, it has at best but a sickly appearance. Seeds of *P. Cembra* are readily obtainable, and may be sown in the open ground, but care must be taken that they are not eaten by mice or birds, by both of which they are much sought after. For the first few years the growth of the seedlings is exceedingly slow, after that somewhat more rapid, but, as has been stated, this Pine is never a free-growing kind. ALPHA.

The White Laurustinus.—For many years we were content to admire the *Laurustinus* in the open air, and too often, as in this year, we have had to forego the pleasure of seeing it expand its pretty flowers, winter's hand having been laid too heavily upon them. It occurred to few in this country to utilise this plant for culture under glass in the dreary winter months, but Continental growers were more wise, and made the most of it. The winter in Germany, so deadly, so fatal to all but the very hardiest of evergreens, does not allow of this shrub being planted in the open air, even in sheltered positions, so that there it has come to be regarded as a house plant, and large plants are grown in most establishments for the supply of cut flowers in the winter, especially at Christmas—a busy time with the German floral decorators. The value of the normal kind being so fully appreciated, it is no wonder that a variety possessing flowers of exceptional purity should have obtained an enthusiastic welcome from Continental florists. Large numbers of it are grown by the Belgian nurserymen, who, with their usual astuteness, at once recognised the fact that there would come a time when it would be in large demand. The imported plants are grown as little standards, with fine healthy heads of foliage, the roots of each one being carefully enveloped in straw.—J. CORNHILL.

The Weigelas are certainly among the best of all our flowering shrubs, yet of the great variety now in cultivation one seldom sees more than *W. amabilis* or *W. rosea*. From the Continent has been sent of late years an almost endless list of names, the representatives of which in the majority of cases resemble each other, yet if selections be made a pleasing and distinct group can be formed. In the first place a great improvement on the old *W. rosea* is *A. Carrière*, the flowers of which are longer and of greater substance, though in colour much the same. It was thought when *W. hortensis nivea* was first sent out, now many years ago, that it would form a fine companion to the rose-coloured kind; but it never became popular, owing to its loose spreading habit and irregular manner of flowering. Such

objections, however, cannot be urged against *W. candida*, which may be best described as a pure white *W. rosea*, and having said that no further praise is necessary. Of all the dark varieties *Lavallei* is one of the oldest and best; its flowers are of a beautiful crimson claret colour, and certainly deserves more extended cultivation than it at present receives. A still darker kind, but dull in colour and not nearly so effective as *Lavallei*, is *Edouard André*; while there are many kinds—hybrids between *Lavallei* and *rosea*—with flowers intermediate in colour between the two, and of these *Dr. Baillon* is one of the best. Up to the present I have only spoken of the flowers, but the beautiful golden foliage of *Looymansii aurea* must not be passed over; it is one of the best of our golden shrubs, as it retains its colour the whole of the season and is never injured by sunshine.—ALPHA.

TREE RECORD.

Quercus glabra.—A fine example of this Oak came under my notice the other day—a picture of health, even after the late severe winter, and forming one of the most beautiful of evergreens. This species is plentiful in Japan, both in a wild state and planted in gardens, in which it is often cut into the different shapes of which the Japanese are so fond, but when allowed to grow naturally it forms a large shrub or small tree, bearing thick, leathery leaves almost as large as those of the Laurel, and of a deep green hue. Though introduced as long ago as 1830, it is still planted very sparingly, certainly not so much as it should be, considering its hardiness.—ALPHA.

The Weeping Willow is one of the most beautiful trees in South Europe. Here it retained the green leaves of last year until the 8th of January. Now (March 8) it is again in leaf. At home this early growth is invariably (speaking for many years past) cut by spring frosts, and their subsequent growth does not attain the same length. I have never seen trees of this Willow in England as here, with weeping branches 10 ft. to 12 ft. in length.—J. H. W. T., *Cannes*.

A Curious Sport.—While looking over the collection of Taxaceæ at Kew the other day, my attention was attracted by a peculiar specimen. A plant of *Podocarpus Koraiana* had on it a shoot indistinguishable from a branch of *Cephalotaxus drupacea*. The contrast was striking, as the habit of the *Podocarpus* is much the same as that of the Irish Yew, but it has larger leaves of a deep green colour, with which the stem is thickly clothed, while the *Cephalotaxus* has its leaves arranged strictly in two rows, and the branches grow out horizontally. At first I thought it must be a grafted specimen; but on closer inspection, I found that such was not the case, the branch of *Cephalotaxus* growing out directly from the *Podocarpus*.—H. P.

WOODLAND WORK FOR APRIL.

PLANTING should now be brought to a close as quickly as possible, as every week increases the risk of removal, and the more especially so if a long dry season sets in. The smaller deciduous trees and seedlings of various kinds may still remain to be planted out, and a showery April is especially favourable to the work. This is also a good time to remove evergreens of various kinds, as Yews, Holly, Laurels, Hemlock, Spruce, and Box. Everything should now be cleared from the falls with the exception of Oak; brush should as soon as possible be taken up from the rides, and all gaps in the hedges stopped before cattle are turned out. Advantage should be taken of every opportunity to mark the Oaks for felling and stripping. This is an operation which requires considerable judgment and experience. Where the crop consists of underwood with standards, the latter should, as far as possible, be left at regular distances, and if the undergrowth is to flourish and come to maturity, the standards should not occupy more than one-third of the entire wooded area. The benefit of the remaining timber should be considered before the market value of the thinnings.

With an early spring bark-stripping may be expected to commence before the end of the month; therefore every preparation should be made so as to have the other work well in hand. In felling, all stools should be cut low, as much for the advantage gained in the timber as for the benefit of the future crop. A clean cut round near the ground and a very careful removal of the lowest boly-bark will facilitate the appearance of shoots. The trees should always be felled and stripped when the sap flows freely, so that no hammering of the bark before removal may be necessary. As this work is in any one locality generally limited to about twenty-eight days, a calculation should be made beforehand of the quantity to be stripped and the consequent strength of the gang required; about fourteen days of sunny weather with drying winds are generally sufficient to prepare the bark for delivery. The stacking, whether upon the ground or upon stages, should be carefully done, so as to exclude wet, and on no account should the inner surface of the bark be exposed either to rain or sun.

Woodrises may now be sown down with suitable Grasses, a mixture of about 32 lbs. of the following kinds being generally sufficient for an acre: Rough Cock's-foot and smooth-stalked Meadow, Wood Meadow Grass and rough-stalked Meadow, Sweet-scented Vernal, Timothy, tall Fescue, hard Fescue, and Meadow Foxtail.

In the nursery great activity will be required in the transplanting of seedlings, hoeing among the rows of older plants, sowing from the rot-heaps, and preparing beds for coniferous seeds. The latter should be sown upon beds of thoroughly pulverised soil, and afterwards covered up by riddling some fine mould over them. During the prevalence of frosts young seed beds should be protected. Small spray put in at intervals is often found to afford the necessary shelter.

Forest trees may now be grafted, and nothing but healthy stocks should be selected for this purpose. A good grafting clay should be made use of, and this should always be prepared some weeks before it is used. Evergreen hedges may also be trimmed, and shrubs should be got into order. Both wire and wood fences will now require to be overlooked, and wood-work may be tarred or painted as the situation requires. The black varnish has been found very valuable for the protection of ironwork at a far less cost than painting.

Pluckley, Kent.

A. J. BURROWS.

THE ROSE GARDEN.

EARTHING UP OF DWARF ROSES IN WINTER.

This winter has cut back most of our best dwarf Roses to the ground line. This is at least 6 in. too low. The best buds are seldom posted so near to the ground; on the contrary, those found there are mostly weak and undeveloped. It follows that if we are to have a succession of severe winters, some simple measures must be taken to protect dwarf Roses at least 6 in. above the ground. Various expedients have been used for this purpose, such as the usual mulchings of litter, thatchings with boughs, &c.; but as our winters seem to have settled into cycles of such severity, that zero has to be reckoned with as a matter of course, it is time to apply some more simple and universally accessible means of protection. The snow sometimes comes to our help, and sometimes not; when it does come it is wonderfully cold; besides, it is so capricious alike in its coming and its going, that it cannot possibly be relied on as a means of protection. The earth is ever at hand, and may be depended on to remain where it is put; it is also—especially when in a loose state—a capital resister of cold. It is astonishing how sharply the line between living and dead Rose shoots is drawn at the surface. In many cases everything above the surface is quite dead, while all less than 1 in. below it is alive. It would therefore seem as if 1 in. of earth was proof against the killing force of zero temperature. But in applying earth to protective purposes there is no need to be so sparing of it. To ensure the safety of even the most tender Teas, a ridge of earth 6 in. high and 9 in. or 1 ft. broad at the base would be ample. The earth might be employed towards the end of October, and removed in the middle or end of March, choosing a genial time.

The results of some experiments made some years ago on Chinas and Teas was most successful. The tendency of the earthing up is to keep the plants at rest; not excite them into growth, as supposed; for the earth that resists the cold also excludes the heat, and this latter service is at times as valuable as the former. No one who has noticed how the late few days of sunshine has drawn out the buds of Roses into bursting but must have wished for some way of keeping them back. Those that have been earthed or mulched up have continued almost dormant, while the others have grown into leaf or formed new shoots. As another means of keeping earthed-up Roses late, it is as well to leave the exposed portion unpruned. Should the winter spare them they will be useful for the first outflow of the sap. They should, however, be cut down to the ground-line early in March at the latest to impart strength and vigour to the buds that have been covered in winter. Of course the critical stage of the earthing-up system is the uncovering. Should a severe frost follow sharp on the newly-exposed shoots, it may cripple or almost make an end of them; but by choosing a mild spell of weather the shoots take no harm, and the fresh plump buds break with amazing rapidity. By drawing the ridge of soil rather fine at the top, the Roses will be kept dry as well as warm. This enables them to resist the cold better, and also to keep dormant longer than they would do in a more moist state. Something might also be done to protect long shoots of such Roses as Lamarque, Maréchal Niel, and Celine Forestier by burying them in winter, whether grown as dwarfs or against walls. It is heart-breaking to see how many of these are killed. Few things impressed me more on one of my visits to France than to see the care they took to preserve their Figs, even in such a climate as Argenteuil. The plants are grown as dwarf bushes, and thrown partly over and buried, stem and branch, for the

winter; the Figs fruit and thrive all the better in consequence. Surely some such treatment is practicable with many of our Tea and other tender Roses. By growing *Maréchal Niel* as standards on the Brier, we seldom lack flowers through the summer and late autumn. I purpose growing dwarfs on its own roots in the open, mulching the crown and burying the long branches for the winter as soon as possible. Will our Rose Canon and others favour me with their views and experience, if any, on the earthing-up of dwarf Roses or the burying of Rose shoots, with the object of carrying them safely through the winter? D. T. FISH.

MARECHAL NIEL ROSE IN CAMELLIA HOUSES.

NOTHING adds so much to the appearance of a plant house of any description as climbers on the roof; yet, in addition to the injury sustained by most plants when grown under roof climbers, through the diminished light they receive, there is often the still further difficulty of giving to the climbers, and the general occupants of the house, the treatment which each requires. For instance, it frequently happens that, to keep the climbers free from insects, it is necessary to give them copious syringings daily, which causes the water to come down upon such flowers as are beneath in a way that disfigures them; and if the other alternative is followed—of withholding water from the climbers—they fail to thrive, and, in addition, affect the plants below with the insects that infest them. Still, so far as the latter difficulties go, they can be overcome when the body of the house is occupied by some kinds of plants, and climbers suitably selected for the purpose. Camellias do better than most things with climbers over them; and when these plants have a house to themselves, the shade which a thin covering of roof plants affords is a benefit during the spring and summer, and in their case, no reasonable quantity of water overhead will do harm. There are few plants more suitable for using in this way than *Maréchal Niel* Rose, as, independent of the general estimation in which its flowers are held, its strong, free habit of growth and stout, persistent foliage give the requisite shade to the Camellias in sunny weather, an dit is less liable to be affected with mildew than most kinds of Roses when placed in a like position, as any tender-leaved Rose is certain to become a prey to this parasite when its young foliage, produced under the influence of artificial heat, is exposed to so much air as is necessary for the Camellias. Unfortunately, there is a difficulty with this grand Rose in finding a stock on which it will live any length of time. Like others, I was for some time under the impression that it would do better on its own roots; but I find that so grown it goes off much in the same way that it does on any of the stocks on which it has yet been placed. So far as my experience goes, it lives the longest when budded on a young, vigorous Brier half standard high, as when grown in this way the large spongy excrescence usually formed at the junction with the stock is completely above the damp earth, and under such conditions, death, which is caused by the protuberance, seems to be longer deferred. The way in which this Rose goes off is a great drawback to it; for although some individual examples last much longer than others, it appears to only be a question of time; and when it is grown in positions from which it cannot be spared, there seems no way but introducing young plants at intervals to take the place of the older ones that die off, taking the precaution to plant the young ones sufficiently soon to give them an opportunity of gaining strength and size to at once occupy the space of those that die; or, what is still better, gradually reduce the heads of such as show the diseased stem to make room for the young examples that are destined to fill their places. T. B.

ABNORMAL TENDERNESS AND PERPETUAL BLOOMING.

THE old saying that "You cannot both eat your cake and have it" applies to this matter. Rose harvests in October or even November are incompatible with the hardness of Roses or their ability to endure our ordinary, to say nothing of our extraordinary winters. Even the Roses that do not flower perpetually, of which there are far fewer than might be supposed, grow on and on many of them until pulled up by the frost. The one growth a year, succeeded by maturity, has given place to several or a continuity of growth, and consequent immaturity forcibly arrested by frost. Hence the cold hits the Roses in the wrong state, and every degree pierces deeper far than if the Roses were ripe and at rest. The rage for perpetual bloomers has given us but few such, but has excited the blood of most of our Roses to a dangerous degree. They have become endowed with a restless, feverish desire to grow, and the longer they grow the more tender they are. A remedy for this state of things is difficult, though perhaps not impossible. It cannot be met by any attempt to hie back to Roses that will flower but once a year,

though there is a wide field for improvement among such. Still, a good deal might be done by weeding out those so-called perpetuals that seldom bloom twice and forming them into a class by themselves. Those that bloom twice might then for cultural and protective purposes be classed with Teas and treated as not quite hardy, for no Rose can be really hardy that blooms through September or October. The oblique rays of the autumnal sunshine is a poor preparation for the violent onslaught of the frost. The late-flowering varieties should all be carefully noted and have distinct winter treatment. And then, too, perhaps our high culture has a good deal to do with the abnormal tenderness of modern Roses. The richness of the soil and the tremendous manurings given beget a grossness of growth that admits the frost further and to far more destructive purposes than were the plants less strong and the wood less vigorous. No doubt the forcing treatment produces magnificent show flowers, but it also makes many of the most robust plants fall victims to the first sharp frosts. The place for some of our best perpetual Roses is with our Teas under glass. With temperature under control the dream of perpetual Roses can be realised, but not in the open air in our climate. In pursuit of perpetual and late-autumnal flowers in the open, we have sacrificed thousands and tens of thousands of our best Roses. D. T. FISH.

Gloire de Dijon.—There is no doubt that Mr. Walters is right. Take it for all in all, we shall never find the like of *Gloire de Dijon* again. It seems to have rather enjoyed its brush with zero than not. We have huge dwarfs of it with shoots like fishing-rods, standards on the Brier with fat branches in plenty, long branches on walls, and Glories everywhere, and it is the one living healthy Rose among hosts of crippled, dying, or dead. It is quite refreshing to see its large buds breaking into leaf, and in a few cases, in warm positions, buds just as if nothing had happened. In all seasons, places, states, or conditions you may rely on the *Glory* for the first and last Roses of the season. It is the most free and most perpetual bloomer we have. In a cold passage we cut the first *Glory* in the middle of February, having gathered the last one in the open a day or two before the dreadful snow-storm on the 18th of December. That reminds us of another great merit of the *Glory*. Frost ruins most Roses in bud; it hardly seems to arrest the progress, scarcely ever destroys the late buds of the *Glory*. They may be frozen into iron-like hardness to-day, thawed to-morrow, and start growing on the third day, and keep on filling up or opening as if nothing had happened. Had it no other good qualities, its earliness, its lateness, and its persistency in flowering would render it most valuable. But it has many more good qualities. We all know that its shape, when fully opened, is not exactly a model of symmetry; on the contrary, it looks rather as if it had been so fully filled with petals, as to produce an explosion rather than an unfolding of its beauty. But in bud the *Glory* is exquisite—the shades of colour there is, running all the way from a tinge of pink on the outer petals to the mellowest, deepest gold, at times, at or in its heart. But everybody knows the *Gloire de Dijon*, excepting the raisers of new Roses, for how otherwise can we explain the fact that the *Gloire de Dijon* may yet be said to stand alone in all those qualities referred to instead of its being at the head of a large family of Teas as hardy and as persistent bloomers as itself?—D. T. FISH.

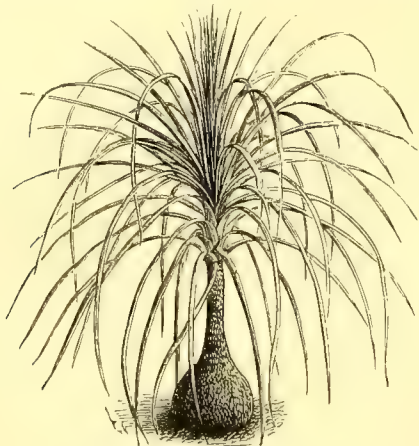
Single Roses.—The authoress of "The Art of Gardening" (p. 249) would highly appreciate the two single Roses known as *Rosa rugosa purpurea* and *Rosa rugosa alba*. They are perfectly hardy and of easy culture, continuing in blossom in my garden from June till within a few days of Christmas. The question was asked in a late number, "Whether these Roses fruited in England?" My present bushes were cuttings from large ones in the garden of the late Mr. W. Wilson Saunders at Worthing. The crimson fruit of the variety *purpurea* was frequently used as an ornamental dish on the dinner-table, its size being about that of the Apple called the Golden Drop. The fruit of the variety *alba* was of a more orange colour, and not quite so large.—S. S., *Worthing*.

Marechal Niel.—I consider it unlikely that this Rose will prove to be long-lived on any stock except in exceptional cases. The best safeguard, perhaps, is a stock of young plants in 12-in pots in which they will make good sized material, and then, should a plant go off that is planted out, one of them can be put in its place, thus filling up the gap. They may be raised from cuttings taken from a healthy plant, and put in a 4-in. pot plunged in a 10-in. one; a piece of glass should be put over the top, and they should be placed in a warm house.—H. HOWARD, *Castle Malgwyn*.

READERS cultivating new or rare plants are requested to inform us of the flowering of such, or to send us specimens or drawings.

THE INDOOR GARDEN.

Beaucarnea recurvata.—This plant is also known as *B. tuberculata* and *B. intermedia*, though in some collections these are thought to be distinct. The name *Pincinctitia* has for some time been attached to this plant; but this is an error, the result of the wrong reading of a label sent from Kew to M. Van Houtte's nursery at Ghent. Several species belonging to the genus *Beaucarnea* are well worth cultivation, as, for example, *B. longifolia* (*Dasyllirion*) and *B. glauca*, also called *stricta*. The plant in question has long, narrow, recurved foliage, from 2 ft. to 4 ft. long, and of a dark



Beaucarnea (Pincinctitia) recurvata.

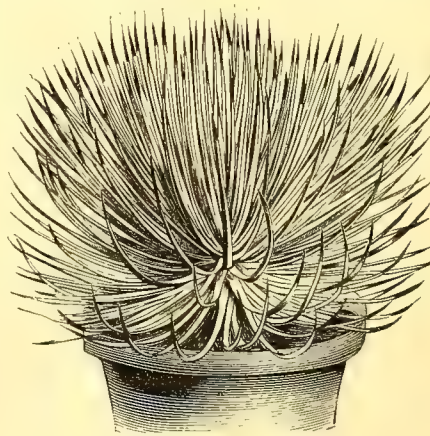
shining green colour with a tint of red at the base. For centre plants in small conservatories, vases, or for planting in the open garden in summer *Beaucarneas* are excellent. Being natives of the highlands of Mexico, they do very well in a cool temperature in winter; in fact, stand very well in a room. Their foliage is not easily injured by gas, and though they may get dry, the large tuber at the base keeps all safe. They require a good soil, but do not like peat. Though they stand drought well, yet in summer they are best treated as sub-aquatics. Under this treatment the foliage grows longer and denser than it would do under other conditions. They may be increased by cutting off the head, which will strike if allowed to dry for a day or so; then it should be put in sand and kept exposed, but not over wet. Young shoots may also be taken off with a portion of the old stem and treated in the same way. Young plants are of most use for purposes of decoration, but this *Beaucarnea* will reach a height of from 10 ft. to 20 ft.—J. CROUCHER.

The Two Large Tree Rhododendrons at Kew.—In THE GARDEN of March 26 you briefly notice the *Rhododendrons* in the conservatory at Kew, especially mentioning the two large plants of *R. arboreum*. It has occurred to me that it might interest your readers to be informed of the history of these two plants, which is as follows: In 1818 Dr. Wallich in his visit to Nepaul collected seeds of *R. arboreum*, of which packets were sent to the Royal Botanic Gardens, Kew, and Edinburgh; in both establishments they vegetated freely, giving abundance of seedlings; and, coming from India, it was considered that they required stove heat for their cultivation; accordingly in the Edinburgh gardens a hot-bed was prepared, consisting of one frame-light which was covered with a layer of fine peat soil, into which the seedlings (about the size of pins) were pricked, Mr. McNab taking one side and I the other. These succeeded, and by the end of the year were fully established, and ready for transplanting singly into pots. At Kew all were lost by giving them too much heat. This circumstance having become known to Mr. McNab, and as I in 1820 left Edinburgh for Kew, two plants were accordingly placed under my care, and these are the plants which you specially notice as being now in flower in the conservatory at Kew; the largest of these is now 23 ft. high, girth of stem 6 in. from the ground 3 ft., and circumference of branches 15 ft. The cause of the second plant not being quite so large is simply consequent on its not being shifted so often as its more favoured companion.—J. SMITH (Ex-Curator), *Royal Botanic Gardens, Kew.*

Mossing, Oyster Shell Crocking, and Manuring.—This winter I had to manage large quantities of *Roses*, *Heliotropes*, *Pelargoniums*, &c., that had flowered out of doors, and that had been lifted and potted for winter blooming. All of them had been over-potted and as I could not shift them into smaller pots without a

severe cutting back, I resorted to the mossing system. The pots were 10 in. deep and 10 wide, and the greater part of them were 12 in. in diameter and 12 in. deep. One of these pots happened to get broken, and revealed to me a new system of crocking. It consisted of 6 in. of oyster shells, not one shell inverted with potsherds over it, but tumbled in helter-skelter; on these were placed, pressed down hard, 1½ in. of green Moss; on that was put the soil, then the plant. At first I thought this arrangement an accident or an experiment with, perhaps, one plant. But no; every pot was crocked in a similar way both for soft and hard-wooded plants. I surfaced with bone dust and Moss, and very soon the working roots were at the top, in the form of a complete mat. I then commenced using liquid manure made from cow droppings, and I have now 2 ft. of young wood on my *Roses*, all of which are flowering finely. On the *Heliotropes* and other things I never had in the same space of time, under any culture, such fine blooms. Whether this is the result of the dose of oyster shells or the treatment given, your readers can form their own opinions; I have mine. In potting we all know there is a good deal of waste soil between the crown and the starting of the roots. When we re-pot we of course detach this, and apply the bone dust simply or with the addition of liquid manure, the object, seemingly, of the Moss being to exclude light and air, and thus induce the roots to grow upwards. I tried a few plants without the Moss, but without such good results. I place my Moss level with the rim of the pot, but I notice that Mr. Henderson applies his differently, bringing it up in a cone to the stem, which, in the case of small pots, cannot well be avoided. It reminds one of how in days gone by we used to put *Sphagnum* on the top of plants and tie it down with bast for packing. On this side we pack in tiers in a dry-goods box, from three to six pots high, and send them thousands of miles without a pot being broken. In order to get all we want, or possibly can get from winter flowering plants, the mossing, bone dust, and liquid manuring system is the best; and to get healthy roots in the case of a sickly plant without repotting I am sure it will work well.—GERALD HOWATT, *New Jersey.*

Agave striata Richardsi.—This is a dwarf compact form of *A. striata*, often called *A. hystrix* and *stricta*. It was sent from Mexico to this country by Mr. Roezl about six years ago. The old *A. striata* grows from about 3 ft. 6 in. to 4 ft. through, but this plant is more dense, only attaining a height of from 12 in. to 18 in., and the same in width. It is a useful plant for small beds or centres in geometrical gardens, and it also succeeds very well on rockwork. It belongs to the section of *Agaves* with spicate inflorescences; therefore after flowering it throws up new centres of growth, by which means it can be increased. When these shoots are taken off they should be allowed to dry for a few days before they are set on soil. My plan is to set them on a pot and keep them dry until they root;



Agave striata Richardsi.

thus all fear of damping is avoided. Seed of it should be sown as soon as ripe in a good heat. When up expose the seedlings on a shelf, and water them with care. I look upon this *Agave* as one of the gems of the genus.—J. CROUCHER.

Rotting of Hyacinth Bulbs.—It has always been and always will be the complaint of amateur bulb cultivators that *Hyacinths* in water are so apt in unfavourable positions to rot. A curious experience of mine in this respect will, I am sure, be of in-

terest to many. A very expensive show bulb of mine went rotten in water last November, so I took it out and gave it to a friend. He cut away all the rotten part and all the roots, and potted the bulb to give it a chance. It now bears a magnificent spike of pink flowers, a circumstance which to my mind is as satisfactory as it is singular.—GIROFLE.

SEASONABLE WORK.

Greenhouse Plants.—The most successful growers of hard-wooded plants now make a practice of potting much earlier than they used to do, and doubtless many valuable lives are saved thereby, as it stands to reason that delicate-rooting subjects can go much longer without water after potting early in April than they can when the sun gains greater power. When the plants which require potting have been properly watered, and clean dry pots and crocks are in readiness, great care should be devoted to the preparation of the compost, which should be rough and lumpy in proportion to the size of the balls, and dry enough to bear ramming with the potting stick until the new part is as firm as the old all. The barbarous practice of destroying half the healthy roots with a pointed stick should be abandoned, water should be sparingly given, and to prevent loss of moisture shade from bright sun, and an occasional dewing over with the syringe will be needful. Plants of all kinds should be clean and free from insects, and the roots should be on the move before they are potted. In order to keep up the gay appearance of the greenhouse, after forced plants have passed away, Fuchsias, tuberous-rooted Begonias, and the indispensable Pelargoniums will well repay all the attention that can be bestowed upon them. Of the latter, cut-back plants will come into early use, and these will be followed by autumn or spring-struck stock, which should be firmly, but not over-potted, and grown on near the glass with full exposure to sun and light. As cuttings of the hardier kinds of Begonias, including insignis and ascotensis, Eupatoriums, and the old Chrysanthemum frutescens are potted off, they should be kept in a close intermediate pit to get established, and when the weather becomes warmer they may be removed to cold frames for the completion of their growth W. COLEMAN.

THE FLOWER GARDEN.

PEONIES IN GRASS.

ONE of the boldest things we know of in wild gardening, and certainly the most brilliant, is the putting of a group of scarlet Pæonies in meadow grass. Of the effect, the accompanying



Pæonies in Grass.

illustration gives such idea as a small woodcut would permit, but it would require an oil picture of some strength to show the singularly fine effect of the group of Pæonies blooming in the long meadow grass in early summer. It was so managed that it came into the garden landscape, so to say, and could be seen for a considerable distance from certain points of view. It was so placed that when out of flower it could not be an eyesore or in the way, as such plants sometimes are in the mixed border. In the future of our gardens there is a good deal to be done by the tasteful cultivator in considering well the positions suited for some kinds of plants. It is easy to so arrange plants, for example, that are very handsome in spring and early summer, but do not continue in perfection into early autumn, so that their effect when out of flower, or even their disappearance altogether, will not mar any "composition." The point is a very important one and well worth attending to. Pæonies are among the plants that deserve this kind of attention.

If they are grown for their flowers only, or their buds, or for the purpose of increasing them, they may be placed in nursery lines in some rich part of the kitchen garden. In such a position one would soon have enough to spare for putting a bold group in

some place such as that shown in the accompanying illustration. As to the culture of these plants and the selection of the newer and handsomer kinds, we may refer to the article which accompanied the plate of Pæonies lately published in THE GARDEN.

Spring Gardening.—One of the prettiest, most effective, and least expensive plans of hardy gardening is likely to be produced by naturalising patches of such plants as will take care of themselves about the margins of shrubberies and lawns, where the ground is never dug. Crocuses, Narcissi, Snowdrops, Hepaticas, Primulas, Grape Hyacinths, Irises, Pæonies, &c., are well suited for this purpose, and they fill a gap from March till June or July. The snow has just disappeared a few days ago with us, and Snowdrops are in full bloom, and so also are the Cloth of Gold and silver Scotch Crocuses, while other kinds will be a week or a fortnight later. Narcissi, Primroses, &c., are coming on behind these in abundance. All are on the Grass scattered promiscuously about the margins of the bushes. The white Crocuses are far more telling than the Snowdrops, and the golden Crocus has a good effect on green lawns, meeting the eye in all odd nooks and corners. Planted in this way, the display lasts much longer than in the bedded-out "spring garden," the sunny corners showing up first, and the others succeeding these a while later. We feel the want of a good purple or crimson Primrose of the same vigour as the wild one. What we have on the borders here are comparatively dwarf and inconspicuous; besides, good ones are rather dear in quantity, if not scarce. The common Primrose is a fine object in good soil. Some years ago we planted numbers, putting about a peck of good loam in each hole, and I have since counted nearly 400 blooms to a plant. The patches could be seen about a mile away. None of the above receive any special attention. The mowing machine cuts close up to the trees as before, and just beyond are the bulbs and plants, where the Grass is permitted to grow till all the foliage of the bulbs and other spring plants is ripe, when it is cut over and swept. By spring, when the flowers come up, they stand out in good relief against the short, fresh, green Grass. But planting in this way should not be done in driblets. However many bulbs, &c., can be afforded, plant in good recognisable patches, and plant the roots near each other, particularly Snowdrops. Plant an irregular patch 1 yd. or 2 yd. across, and set the bulbs about 1 in. asunder. Crocus the same, only a little wider from bulb to bulb. Above all, always place the sod on the top again, as rats do much damage, and are sure to find Crocus roots out if the loose soil is left exposed; Daffodils they do not meddle with. Would some of your correspondents kindly say what coloured Primroses, distinct colours, succeed best in this way? The lovely little Hepaticas are gems, and associate well with the Snowdrops and early Crocuses coming up at the same time. Grown on the bare border, none of our spring plants can compare with those on the Grass, which makes the best groundwork.—J. S. W.

Hellebores at Tooting.—Of Hellebores, the following are now in flower in Messrs. Barr & Sugden's grounds at Tooting: *Orientalis* group.—*Orientalis*, the type in many shades from almost white to dull purple; *antiquorum*, pure white, spotted crimson, and the same without spots; *guttatus*, white, spotted crimson; *g. sub-punctatus*, white with few spots; *g. C. Benary*, white, sepals dotted all over crimson; *abchasicus* of Regel, a form pretty generally cultivated in gardens as *atrorubens*; *atrorubens* of Baker, a very decorative plant, a link between *orientalis* and *viridis* group; Arthur Collins, a high coloured variety, spotting as in *C. Benary*; *atroroseus*, a form of *abchasicus*; *colchicus*, with blood-purple leaves and deep crimson flowers; *c. punctatus*, spotted flowers; F. C. Heinemann, red-purple, pink spotted; Gretchen Heinemann, dark crimson, beautifully spotted; Apotheker Bogren, a remarkably fine variety of the high coloured class; *olympicus*, white; *o. major*, white; *pallidus* of Regel, a rare species with whitish-green flowers; *orientalis* of Lamarck, a very rare plant with whitish flowers; *punctatus*, a fine var. in the way of F. C. Heinemann; *roseus punctatus*, a seedling of Herr Leichtlin, very pretty; *roseus*, a pretty rose-coloured *orientalis*; James Atkins, named after the raiser, the finest of the rose-coloured *orientalis*, large, finely formed flowers of great beauty; *rubidus punctatus*, a seedling of Herr Leichtlin, purple, spotted all over the inner surface of the flower. *Viridis* group.—*Torquatus*, a dwarf species with smallish flowers, dove colour inside and outside; *purpurascens*, dove colour outside and greenish inside; *Columbine*, a fine species, purple outside and greenish-purple inside of flower; *graveolens*, brown-purple outside, greenish inside of flower; *luridus* resembles *graveolens* in flower, but more shouldered and the foliage different; *viridis*, the type, and several varieties; *v. pallidus*, flowers larger than the type and whitish-green; Bocconi, flowers bright green, large and beautifully imbricated, B. Elder-scented, this species varying in size of flower, but always imbricated and pale green; *laxus*, flowers bluish-green generally, but not always, and habit

of the plant somewhat loose; dumetorum, light green, small flower, well figured in Sweet; lividescens of Braun, reddish-purple, fine flowering species. Besides the foregoing there may be a few others, as I write this in a hurry and from memory.—P. B.

Fuchsia procumbens not Hardy.—I quite agree with all "W. G." says (p. 303) in favour of this Fuchsia, but I think he is mistaken when he says there can be no doubt as to its hardiness. For three consecutive years we have had it planted on thoroughly drained rockeries in different situations, and the result in every case has been that every plant has succumbed to the effects of the frost, although they were covered with bracken during the winter months. When we first received it I was informed that it was "perfectly hardy," and in consequence of being told so I allowed all my plants to remain in the places in which they were grown. When the frost and snow cleared off I found to my regret that all of them were dead. However, I procured a fresh supply, and since then have taken the precaution to have plants in pots stored in a pit out of the reach of frost; by so doing we get strong plants ready for planting out the first week in April, which is sufficiently early for this district. I consider they are well worth the small amount of labour bestowed in preserving them from injury during severe frost. This Fuchsia is excellent for covering rockwork during the summer and autumn months, and although the flowers are small, yet they are very beautiful.—W. NEILD, Wythenshawe, Northenden, Manchester.

Hardy Plants in Bloom at Farnborough.—The following are in bloom just now in the open border and in an exposed situation facing the north-east at Farnborough Grange, and although we are having from 10° to 14° of frost nightly, many of these lovely spring flowers do not seem to sustain any injury: Of *Scilla sibirica* nothing is more charming than to see a good patch with from twenty to fifty blooms open at one time; they form a fine contrast with those of the double red Hepaticas or the different coloured Primroses. In order to see the full beauty of spring flowers they must be in good patches, not, as one often sees them, in single rows or in the shape of small plants dotted all over the border or bed. The following amongst others are in good condition, namely: *Draba aizoides*, Hepaticas, Grape Hyacinths, Dog's-tooth Violets, Bitter Vetches, *Saxifraga oppositifolia*, *pyrenaica*, and *Burseriana*, *Sisyrinchium grandiflorum*, Squills, *Triteleia laxa*, double and single Primroses, Hyacinths of different colours, *Rhododendron dahuricum*, *Cydonia japonica* and *C. princeps*, *Daphne Mezereum atro-rubra*, *Erica mediterranea*, and *Aubrietias* of different sorts. —J. C., Farnborough.

Wallflowers from Cuttings.—I very much like "Girofle's" mode of propagating and growing these old favourites from cuttings, and used to practise it with the double varieties. Unfortunately, however, this year has made a clean sweep of our Wallflowers, and we have none left to get cuttings from. Can "Girofle," or any other reader, forward a few cuttings of good single or any double varieties? I have also seen the Wallflower treated, and grown it myself as a perennial, but the last few winters seem to have hit all such plants harder than usual, and made an end of them even in cottage gardens, though I think the Wallflower treated as "Girofle" describes at p. 322 is more hardy than when grown in the usual way. Should the cycle of severe winters continue, no doubt we must take to the pot culture of the Wallflower. But, however welcome its presence and perfume may be in the window, garden, or greenhouse, the true home of the Wallflower is the open border, rockery, or wild garden. In the two latter positions especially, warm, sheltered, and sunny sites may often be found for such old favourites as the Wallflower, which is not only fragrant and beautiful, but brimful of the sweetest and tenderest associations of the homes and the loves of our childhood and youth.—D. T. FISH, Hardwicke House, Bury St. Edmunds.

Androsace Lageri.—This rare alpine, which is seldom found in any of our English florist catalogues, is now in flower here, and is a very lovely plant. It has passed the winter in a cold frame, and is therefore quite hardy. It grows in dense tufts like one of the Mossy Saxifrages, from which rise small flower-stalks about $\frac{1}{2}$ in. in height, each bearing two or three buds. The flowers are deep hemispherical cups, like tiny claret glasses of the deepest pink. When filled with dew or fine spray they hold the water for hours brimfull, with a convex surface like a thick lens, and if you peep into this lens you see the golden centre of the flower magnified and charmingly beautiful. This tiny plant is well worth cultivating.—BROCKHURST, Didsbury.

Campanelle Jonquils.—We find these extremely effective for indoor decoration, for they may be flowered in very small pots, and are therefore available for stands and jardinières, where large, strong-growing kinds are unsuitable. We have a quantity in bloom in 3-in. pots; most of the bulbs have two or three spikes of flowers, and, as they do not much exceed 1 ft. in height, they are extremely useful.

The bright yellow flowers make pretty combinations with the brilliant colours of early Tulips, Hyacinths, and other forced bulbs.—J. G. L.

COTTAGE GARDENING.

MINE is quite a "cottage" garden; scarcely any money and very little labour have been spent upon it; yet it gives me pleasure on every day in the year, and by its constant beauty and the nosegays which its borders have yielded, it has exercised some influence over its larger and more ambitious neighbours. My little garden has led to the planting of many a flower which has been long neglected because, forsooth, it would cheerfully keep true to its blooming time without the aid of artificial heat. My garden is for hardy flowers only, as may have been guessed by my description of it. What but a hardy garden could give pleasure all the year round? I have no glass, not even a frame or a forcing pit; the soil of my borders is a cold heavy clay, and the climate of my county is keenly cold, yet I am never without flowers.

I had gathered Christmas Roses before the frost set in this year, and they, together with some Gladwyn berries, kept my rooms gay until the thaw came. Then, as the snow melted, we found beneath it flowers of Aconite, a Primrose bud, and a few blooms of early Crocus. The interest was great in watching for these pretty things as they were gradually revealed. While these flowers were but still few in number I set them in Moss from the hedgerows, and thus made charming indoor nosegays. Soon came masses of Snowdrops, and then a golden glory of Crocuses. These are still in flower, as are the very beautiful Scotch Crocus (white with dark purple stripes), and I have, besides, masses of pink and of blue Hepaticas, blue Siberian Scillas, Violets, many coloured Primroses, white Arabis, a few blooms of Polyanthus and some Daffodils, and all these flowers are blooming between the evergreen foliage and the young spring shoots of plants which are to make my garden gay in summer. The frosts seem to have killed nothing save one young Rosemary bush which was set in a sunny, but draughty corner. I have learnt before, and ought to have remembered, that my flowers dislike nothing so much as a draught. Then some Moss Rose bushes have been cut down nearly to the ground, but they are not dead; the sturdy little *Rosa rugosa* is full of budlets and green shoots; the dwarf Cherry bushes on the lawn have a rich promise of blossom; in many places there is an upheaval of the earth where the late-flowering bulbs are pushing up green, thick leaves; the early red leaves of the little blue Italian Windflowers make a charming contrast of colour, for they grow near the blue-green leaves of some Pinks. My garden, therefore, is full of beauty, and not the least pleasure which it yields is that of watching for coming delights. The Daffodils, of which I spoke, have flowered under a south wall; I have others for blooming later which are in green bud now. They are planted in the background of a border which faces all but due north; it just gets one brief smile from the rising sun during a few weeks of the year. The Daffodils thrive well in this shady place; just now we have counted on them 250 buds, and then we grew tired of counting, for the number seemed to be endless. How marvellous it is that any English garden should be devoid of Daffodils! and yet are there not many such? In my garden there are at least a dozen different sorts of this flower. The earliest kinds, as I said, are flowering and budding now, and the latest will not fade until the first days of June. When they do fade we plant annual Coreopsis and Cape Marigolds (*Calendula pluvialis*) among their roots, and these bloom while the summer lasts; but even were there nothing to take their place, I could not deprive my garden of its Daffodils. Just now I have been reading Mr. Ellacombe's charming chapter on the Daffodil; he tells us that it "was the favourite flower of our ancestors as a garden flower," as well it might be, and he reminds us that a small volume might be filled with the praises which poets have written of this flower. No one who has seen Daffodils can wonder at this. Daffodils are apt to be thought lightly of nowadays, for there are but few to see them in the wild wet places where they are loveliest, and the rest see them too often thrust away in kitchen-garden corners where they have no advantage either of art or of Nature.

RENAELG.

Staple for Wire Fencing.—Lord Thurlow has patented a remarkably simple invention for attaching wires to fencing posts, whereby not only is there a considerable saving in the material of the staples, but the splitting of the post, and the consequent tendency to rot from the use of the double staples is entirely obviated. A smaller post may thus be used with less cost of transport. The thinning of young wood, cut at an earlier age, can be utilised to a larger extent than usual. The patent staple takes as firm a hold as a common nail, and is not liable to get loose or fall out. His lord-

ship's invention is termed the hammer-closing staple for wire fencing.

TEMPERATURE IN VALLEYS AND ON HEIGHTS.

THERE can, I think, be only one explanation of the greater intensity of cold in valleys on calm, clear nights, when the most severe frosts always occur. In the day-time, as most of us are aware, the air is heated not directly by the sun's rays, but indirectly through its warming the surface of the ground. At night the very opposite takes place. The surface of the ground radiates its heat towards the cold of space* more quickly on clear nights and less so on dull ones; therefore, on calm nights the lower stratum of air becomes first greatly chilled. This being understood, the following, from Buchanan's Meteorology (p. 57), will make all clear.

"Let us suppose an extent of country, diversified by plains, valleys, hills, and table-lands, to be in circumstances favourable to radiation, and each part under the same conditions, except in the single point of position. Radiation will proceed over the whole at the same rate, but the effects of radiation will not be felt everywhere in the same degree and intensity. For as the air in contact with the declivities of hills and rising ground becomes cooled by contact with the cold surface of the ground, it acquires greater density and weight, and consequently flows down the slopes and accumulates on the low-lying ground at their base. Hence, places situated on rising ground are never exposed to the full intensity of frosts; and the higher they are relatively to the surrounding ground, the less are they exposed, being protected by their elevation, which provides, as it were, an escape for the cold almost as fast as it is produced. On the contrary, valleys more or less environed by hills or eminences not only retain their own cold of radiation, but also serve as reservoirs for the cold air which is poured down from the neighbouring heights. Hence, low-lying places are peculiarly exposed to intense cold." On windy nights the upper and warmer air is mixed up with the colder air near the ground, and thus mitigates the severity of the cold.

In practice, however, I believe one other reason why trees suffer less on hills than in valleys is that their wood being more exposed (longer duration of sunshine) to the sun, and the circulation of air being better and the air drier, their wood becomes better ripened. In January last this was particularly evident with shrubs (not as to elevation, but exposure), the north sides being the most injured, and yet all the northerly winds, and they were but of short duration, were quite light, the easterly winds being the coldest and strongest. The warmest situation in winter would be half-way up a slight or gradual incline facing the south.

E. MAWLEY.

Lucknow House, Addiscombe.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

"PEREGRINE" should have made himself better acquainted with the rules of this society before writing of it as he has done. Instead of subscribers being no better off than non-subscribers, those who have subscribed for fifteen years are, in case of need, placed on the funds without election. Life members, or subscribers of one sum of ten guineas, have similar privileges. Surely these are not bad prospective rewards for subscribers. Neither have these beneficiary rules remained dead letters in practice. I find, from a statement just issued, that there are at present ninety persons on the funds of the society, at a cost of £1262 per annum. Of these ninety, forty-four were admitted as pensioners without election, canvass, or trouble of any kind; they are the life members, or annual subscribers for fifteen years or more. These forty-four persons subscribed to the institution £911, and have received from it £4540. Their average contributions were £21 each; their receipts £105 apiece. Surely this looks like getting a good deal for their guineas. Some of the forty-four have been pensioners for a few months; others for twenty-three years. Of these, one subscribed nineteen guineas to the society, and has received £320; another, who gave one life donation of ten guineas, has received £284; a widow, whose husband subscribed for fifteen years—£15 15s., has received £276. Is "Peregrine" convinced that annual subscribers have a good return for their money? Of the ninety pensioners now on the funds forty-four have been placed on the list in accordance with rule 6, having subscribed fifteen or more years, or made one life subscription of ten guineas; twenty-three have subscribed for various periods, and twenty-three were non-subscribers. Since the year 1857 thirty-five other pensioners now deceased were also placed on the list without canvass, or trouble, or favour, according to rule 6. Since the establishment of the society no fewer than 286 pensioners have been relieved, at a total cost of £25,927. Just now strenuous efforts are being made to

extend its usefulness by increasing the amount of pensions, if possible, and it is a misfortune that "Peregrine," or any other writer of influence, should, through mistake of its rules, disparage either its character or its usefulness. It should also be borne in mind that as the society grows older rule 6 will become more operative, so that very soon, probably, only life members or subscribers will be able to reap the benefits of this most useful institution. I do not advance this as an all-powerful motive for joining it, but those who view all institutions through the medium of self-interest, specially or wholly, have the strongest possible motive for immediately becoming annual subscribers or life members of the Gardeners' Benevolent Institution. And surely there are many more amongst us only too willing to do all in our power for our distressed brethren of the craft and their wives in misfortune, so many of whom have been ministering sisters to us in many hospitable ways, in the fervent hope that we may never need our guineas for ourselves or those still dearer to us.

D. T. FISH.

Plant Labels.—Take a piece of thin zinc, cut it into strips polish one side thoroughly with a piece of emery paper, and write the name on the polished side with a fine pen dipped in a solution of chloride of platinum, which turns black at once. Punch a hole in the upper end with an awl, and fasten the label to the plant with a thin copper wire, or the zinc may be cut long enough to insert one end into the ground if the plant is too small to hold it. A half-ounce vial of the solution may be purchased in New York City of any manufacturing chemist for 50 cents. Ordinary druggists do not keep it. Labels made as above are cheap and durable. I have had them on my Roses and other plants for the past three years, and they are as good to-day as when first placed there.—EDWARD MYERS, *Westchester, N.Y.*

Slow Combustion Boilers.—In reply to your correspondent "Berwickshire," allow me to say that I have had three slow combustion boilers in operation for two winters; the first heats a small Vinery, the second a plant house, and the third a small Tomato house, and I have found them all do their work admirably; in fact, too much so, as owing to the intense cold the Vinery was fired too hard, causing the Vines to break, and now the bunches are ready for thinning, and we expect ripe fruit by the end of May, nearly three months earlier than usual. The plant house has been gay all winter with Camellias, Cinerarias, Cyclamens, Tea Roses, &c., and from the Tomato house we have been cutting fruit all winter. When the frost was at zero the houses were seldom as low as 45° Fahr. These boilers require very little attention in the most severe weather; the gardener attends to them about 9.30 p.m., and can leave them for eight hours without further firing. In ordinary weather they can be left without attention at night for ten hours; they will heat about 300 ft. of 4-in. piping, and during the severe weather burn about 5 cwt. each of coke weekly. The coke should be broken about 1½ in. square. They are No. 2 size, and appear to be as good and sound as when first put in.—F. C. S.

How to make a Smother (p. 246).—I, like many more, no doubt, find it much easier to make a blaze than a smother. The products of the former are, however, really of little or no value; those of the latter are almost worth their weight in gold for various purposes. Make a blaze first, sufficient to give the fire a good hold, then heap all the material on so as to smother and keep the fire in; not, however, to put it out. After being assured that there is no danger of the latter event happening, proceed to cover the whole over with weeds and earth to a thickness of 6 in. or 1 ft. Watch the heap carefully, and as soon as the fire breaks through, add more earth or weeds, so as to stop or smother the fire. Heat thus suppressed chars everything within reach; while actual fire, with access to the external air, consumes or burns it up. The first leaves charred refuse of the most valuable sort; the last leaves ashes of comparatively little worth. The great art of charring is to start with sufficient fire to char everything subjected to it, and to rigidly repress any visible outbreak of the same.—D. T. FISH.

The Griffin at Temple Bar.—Mr. Bedford, one of the city people responsible for the origin of this strange and most unlovely animal, has been saying, we believe, that it would look ever so much better surrounded by trees and flowers in a garden. This seems to us the last and deepest insult ever perpetrated on the art of gardening. We thought that, beyond the water-squirts at the top of the Serpentine and the rotting mud basins at South Kensington, it was not possible to go further in degrading the art of gardening, but the griffin in a public garden would beat all. If it is to be done, however, we would suggest that the griffin be surrounded, at a respectful distance, by the statues, life-like, of the aldermen and others who are guilty of bringing this monster into the world, the whole planted in carpet bedding, and finished off with a ribbon

* Which Sir John Herschel supposed to be about 240° below zero (−239°).

border. Although the heads and bodies of some of the smaller figures on the pedestal are knocked off already, four policemen are employed to guard it from violence; these, perhaps, could be taught the use of the shears on the carpet plants, and in their quieter hours might cut them down to the desired level.

THE GARDEN FLORA.

PLATE CCLXXIX.—*CALANDRINIA GRANDIFLORA*.

THE genus *Calandrinia* (named in compliment to an Italian botanist) is a large one, and many of its species have been introduced to cultivation, though comparatively few of them have been found to be sufficiently effective for general culture. The following, however, are both showy and perfectly hardy:—

C. umbellata, a native of Chili, has reddish, much branched, little stems, half shrubby at the base, and rarely grows more than 3 in. or 4 in. high. For vivid beauty and brilliancy of colour there



Calandrinia umbellata.

is nothing to equal it in cultivation, the flowers being of a dazzling magenta-crimson, attaining to an almost inconceivable glow, yet soft and refined. In the evenings and in cloudy weather it shuts up, and nothing is then seen but the tips of the flowers. It does very well in any fine, sandy peat, or other open earth, is a hardy perennial on dry soils and well-drained rockwork, and looks best in small beds, but may be used with advantage as a broad edging to large ones. It seems to live longest in chinks in well-made rockwork. It is as readily raised from seed as the common Wallflower either in the open air in fine, sandy soil, or in pots. As it does not like transplantation, except when done very carefully, the best way for those who wish to use it for very neat and bright beds in the summer flower garden is to sow a few grains in each small pot in autumn, keep them in dry sunny pits or frames during the winter, and then turn the plants out without much disturbance into the beds in the end of April or beginning of May. As its beauty is concealed during dull or rainy weather, this may prove a drawback to its use in the flower garden, but by employing it as a groundwork for some of the handsome *Echeverias*, and other neat succulents now beginning to be so extensively employed in good flower gardens, this defect may not be so noticeable. When the plants are raised every year, they flower more continuously than old-established specimens. It may also be treated as an annual, sown in frames very early in spring, but should in every case be associated with diminutive plants like itself.

C. discolor.—Another beautiful Chilean plant, growing from 1 ft. to 1½ ft. in height. Its leaves, which are fleshy and obovate, are attenuated at the base, pale green above and purple beneath. The flowers are produced in a long raceme, and measure 1½ in. across and bright rose in colour, forming a beautiful contrast to the tuft of golden yellow stamens in their centre. They only expand in sunshine, but open several weeks in succession in July and August. This species requires a dry soil and a warm exposure to succeed well. It may either be sown in the open border

or in pots, but care must be taken in transplanting it, as the tender rootlets are very susceptible of injury.

C. nitida.—This handsome species was first introduced to our gardens by Mr. Thompson, of Ipswich, to whom we are indebted for so many beautiful plants of this description. It is closely allied to *C. discolor*, but differs from it in dwarf habit. It is a succulent annual, forming a tuft from 4 in. to 6 in. across in strong specimens, with oblong, spatulate, pointed foliage, 1 in. or 2 in. long, from the midst of which arise several erect stems 6 in. to 9 in. in height, bearing numerous large rose-coloured flowers in a leafy raceme, each flower having the peduncle reflexed in the bud, and after expansion, but assuming an erect position when open, and also when the seed is ripe. The flowers are fully 2 in. across, expanding best in bright sunshine, as do all the species of this genus, when they present, from their large size and beautiful colour, a striking effect. It is best treated as a half-hardy annual, as it then blooms much earlier, but may be sown in the open ground in May. It succeeds well in the border in ordinary garden soil, but also thrives on rockwork if supplied with sufficient moisture. It is a native of Chili, near Concepcion and Valparaiso.

C. grandiflora.—This somewhat resembles *C. discolor*, but is larger in all its parts, and differs in having more showy blossoms and in the shape of the leaves. We had no idea of the beauty of this plant until last summer when we saw it in fine flowering condition in Messrs. Sutton & Sons' trial grounds at Reading, where a large bed of it was one of the most beautiful sights imaginable. The day being bright, the large rosy blossoms expanded widely in the sun, and showed the exquisite semi-transparent petals to advantage. As to its beauty, the annexed plate speaks for itself, and the plant is quite as floriferous as it is represented to be. It requires a situation similar to *C. discolor*, and attains the greatest perfection in a warm and moderately stiff soil. It flowers a little earlier than *C. discolor*, and continues to produce its flowers throughout the autumn. We are indebted to Messrs. Sutton for the specimens from which our plate was prepared.

C. speciosa.—This has slender stems much branched and prostrate; its leaves are elongated, spoon-shaped, and much narrowed at the base. The flowers, which are very showy, measure from ½ in. to 1 in. across, and are of a deep purple-crimson. On sunny mornings they expand widely, and close early in the afternoon. It flowers continuously from June to September. It succeeds well on dry soil, generally sows itself plentifully, and is



Calandrinia speciosa.

admirably suited on account of its dwarf habit for growing on rockwork, &c. It is a native of California.

There are other kinds, such as *C. Lindleyana*, *C. Burridgii*, *C. procumbens*, *C. compressa*, and *C. micrantha*, but they are not worth cultivating generally, as their flowers are not nearly so showy as those of the kinds just mentioned.

W. G.

Lapageria Seed.—I note that a correspondent asks for information as to the best way to get *Lapageria* seed to germinate, and as I have been very successful with it by sowing it in fine, sandy



LARGE ROSY CALANDRINIA (OR CALCEOLARIA)

peat and placing it in a brisk heat in a stove, I would advise him to do the same, but it should be covered with a glass to keep it moist. The point is to use plenty of sand, as that saves the seed from rotting, and another important point is to wash it before sowing, if recently saved, so as to get it clear of the pulp.—S. D.

MELIA FLORIBUNDA.

THE *Melias* form for the most part a group of free-flowering trees from 20 ft. to 60 ft. in height, of which the best known is *Melia Azedarach* or Bead tree, a native of Asia Minor, but frequently found throughout the south of Europe, where it grows into a large tree in



Melia floribunda.

appearance something like an Ash, a resemblance which is heightened by its much-divided leaves. The flowers, which are freely produced in large bunches, are blue, and succeeded by pale yellow berries about the size of a Cherry, consisting of a poisonous pulpy substance surrounding a hard nut-like seed. Although a large growing plant, this kind flowers freely in a small state, but in this country it needs the protection of a greenhouse, for even if it survives the winter against a wall, which it sometimes does, I have never known it flower in such a position. The kind here figured (*floribunda*) is described in the *Revue Horticole* as a half hardy, deciduous shrub, bearing white flowers, and probably requiring the same treatment as the preceding. The other species are but little known and seldom seen; indeed, there are not many who have space enough at their disposal in which to grow them so as to show their true characters.

ALPHA.

Schizostylis coccinea Indoors.—Although this beautiful Iridaceous plant is quite hardy, its late-blooming habit renders it of great value for cultivating in pots for the embellishment of greenhouses, in which it expands its bright scarlet Gladiolus-like flowers in perfection. In general appearance it resembles an Iris, but instead of spreading as Irises do by means of side shoots or suckers on the surface, the *Schizostylis* sends out creeping rhizomes underground after the manner of the *Tritonia*, and as it does this freely, it may easily be propagated by division to almost any extent. The best time to do this is during the early spring months just before growth commences, as then plants can be shaken out and pulled apart without suffering any injury. When quantities are required the readiest way of managing them is to plant them out in a prepared bed, made rich and light with old potting soil or leaf-mould and sand, in which, if kept well watered during the summer, they will become strong and flower with great freedom when lifted and potted in the autumn. To get them well established in their pots before winter sets in it is necessary to take them up early and place them in a close frame, where they can be kept watered and syringed for a time, after which they will require air and less atmospheric moisture to prevent them from damping. If grown in pots, 7-in. ones will be found quite large enough, and if plants are fed freely with liquid manure they will thrive well in them and send up fine heads of bloom. A year or two ago I tried some seedlings which did splendidly; they grew very strong, and I have now some that were sown in heat just ready for potting off, and which, I have no doubt, will serve me equally well for the winter to come. Those who have cut flowers to supply at that season will find the *Schizostylis coccinea* one of the best plants they can have, as by

bringing a few pots of it on at a time in a warm house a long and continuous succession may be kept up during the duldest time of the year.—J. SHEPPARD, *Woolverstone Park, Ipswich.*

THE FRUIT GARDEN.

FIRM SURFACE NECESSARY IN STRAWBERRY CULTURE.

THE importance of making the surface soil firm round Strawberry plants is, I think, often overlooked. Wherever the Strawberry grows naturally there is a firm crust to the soil, very often a hard one, for the wild Strawberry affects soils of a stiff nature, and this is generally more or less carpeted with grass, so that the roots may be said to be doubly protected against sudden and violent atmospheric changes. How the poor Strawberry suffers during a sudden outburst of hot sun in soils so porous, so light, so open at the surface, that the first few inches are like an ash bed, it would be hard to say, but the drooping, dried-up appearance of the foliage, the rusty tinge that it assumes, the utter absence of "go" and vital energy tells its own tale. A large and important portion of the plant's nutritive organs have sustained serious injury. The fierce sun has thrust its parching rays into the soil and withered up those tender rootlets which fill the upper crust and which exercise such a beneficial influence upon the plant when the earth containing them is kept cool and moist. It is not so much to soils of a loamy nature as to those that contain a considerable proportion of sand that these remarks apply. The more free and easily worked the more liable is the natural soil to parch and burn in the summer sun, and the more easily does the fierce heat and arid atmosphere penetrate to the delicate fibres which lie within easy reach of their destroying influence. Those soils which naturally incline to adhesiveness are found to best suit the Strawberry, for if the plants do not attain greater luxuriance in them they last longer in health, simply because the mechanical nature of such soils renders them in a great measure proof against the dessicating influence of a summer's sun, the particles of earth lie closer together and form a compact mass, which does not allow of the sudden entry into it of a body of highly-heated air. Such being the case, we at once perceive how important it must be in the case of sandy, light, porous soils to create a firm surface; and where this has not been done at planting time, it should be set about at once. It is a usual practice to hoe amongst Strawberry plantations at this time, and such an operation is necessary in order to clear off weeds and impart an orderly appearance to them. When this much is done, however, choose a dry time and tread between the rows quite up to the collar of the plant, making the soil as firm as possible. The lighter the soil the more hard should it be pressed down; if made as hard as a barn floor so much the better; there will be all the greater chance of a good crop of fruit and of the plants retaining their productiveness for several years. Then a slight mulch of litter, manure, or anything that may be procurable will ensure to the roots repose and comfort throughout the most trying period of the year. The Strawberry is considered, and with reason, to be a deep-rooting subject, but many do not apparently realise the fact that Nature has provided this plant with two sets of roots; but it is so, and we must conclude that those feeders that dive down deeply into the subsoil are not the only ones that we have to look to, but that those which fill the first few inches of earth are also indispensable to the welfare of the plant. Judging from what I have observed in the matter, I am convinced that the surface roots are those that create fertility. They impart to the crowns their substance and are the most important factors in the process of building up and bringing into existence the fruit germ for the ensuing year. Not only is this the case, but these surface feeders are, as it were, lying in wait, and ready, when healthy and active, to seize hold of and pass up into the fruit any nutriment that may be administered when it is swelling off, and when those innumerable little mouths are rendered incapable of taking the food offered to them the berries lack that fullness of perfection, that bright or rich colour, glaze, and flavour that renders this fruit tempting to the eye and agreeable to the palate. Some years ago I had a striking instance of the danger of not taking into account the important part that surface roots perform in maintaining the fertility of the Strawberry. A frame was planted out with young plants of Sir C. Napier in the autumn. They were mulched in the winter and bore an excellent crop in due time. That summer they were well attended to for water, and the soil between them was somewhat deeply stirred, was kept well moved, in fact, throughout the growing season. The result as far as growth went was in every way admirable; stout, large foliage and big crowns rejoiced my heart in the autumn, and I enjoyed by anticipation the crop of fine fruit which I hoped and supposed would come at the appointed season; but great was my

surprise and vexation to find that the greater portion of these promising plants were sterile, some showing no flowers at all, others here and there a truss. This result so unexpected I must confess rather puzzled me, but subsequent experience enabled me to come to the conclusion that the continual disturbance of the surface roots had materially conducted thereto. The main feeders found their way deep down into a rich bed of soil, thereby promoting rank growth, which could not be properly finished off owing to the absence of the necessary organs.

Byfleet.

J. CORNHILL.

FRUIT CULTURE FOR PROFIT.

Best Pears to Plant.

EARLY PEARS.—Doyenné d'Été; * Jargonelle, does well on Quince; * Fondante de Uerme; * Bon Chrétien (Williams'), does well in all situations; * Beurré d'Amanlis, does well on Quince; Beurré Giffard; * Fondante d'Automne; * Flemish Beauty, does well on Quince; Hazel or Hessel, standard for orchard; Autumn Bergamot, Quince; * Beurré Goubault.

MIDSUMMER PEARS.—Gansel's Bergamot, for wall; * Beurré Brown, wall; Beurré de Capiaumont, Quince; * Beurré Hardy, Quince; Beurré Clairgeau, Quince; * Beurré Diel, Quince; Napoleon, wall; Passe Colmar, wall; Prince Consort, wall; Seckle; Suffolk Thorn, orchard standard; Swan's Egg, orchard standard; Thompson's, orchard; * Van Mons Leon le Clere, wall; * Beurré Bosc; Beurré Superfin, Quince; * White Doyenné, Quince; * Louise Bonne of Jersey, Quince; * Knight's Monarch, standard orchard or pyramid; Comte de Lamy; * Gratioli of Jersey; * Marie Louise d'Uccle, Quince; * Marie Louise, good in all positions; * Doyenné du Comice, Quince; * British Queen, Quince; Conseilleur de la Cour; Baronne de Mello, Quince; * Urbaniste, wall; Durandean, Quince; Aston Town, standard; * Pitmaston Duchesse d'Angoulême, Quince.

LATE PEARS.—* Bergamot d'Espereu, Quince, wall; * Beurré Rance, wall and espalier; * Beurré Easter, wall and espalier; * Winter Nelis, Quince, wall; * Ne Plus Meuris, Quince; Van de Weyer Bates, wall; * Beurré d'Anjou, Quince; * Beurré d'Arenberg; Beurré Sterckmans; * General Todleben, Quince; * Glou Morceau, wall; Beurré Bachelier, Quince; Zephirin Grégoire; * Josephine de Malines, Quince; * Victoria, Huyshe's, wall; Jean de Witte, Quince; Catillac, stewing; * Uvedale's St. Germain, stewing.

When it is convenient, a few of the best kinds should be grown in duplicate, and should be planted in various situations and aspects. I have had Beurré Rance excellent from an east wall, and I have had it the following season almost flavourless from the same tree, whilst the fruits from an espalier although, rough and small, were delicious, and I could relate a similar experience with many of the mid-season and late kinds; therefore, any variety that is thought much of should be grown under varying conditions, so as to meet the various phases of our climate. As a rule, any kind of Pear that will succeed well as pyramid, espalier, or standard should be grown in those shapes. As although a wall gives extra size, it does not always follow that superior flavour accompanies it. Still whenever walls exist they must be utilised for the fine late kinds that require a better climate and to meet the seasons that are cold and sunless. Every bit of south wall that can be spared or that is not required for the more tender stone fruits should be planted with some of the best late Pears. There are hundreds of yards of south wall in the country occupied with unhappy specimens of Peaches that would be more profitably covered with Pears. The truth is fruits require a rotation as much as, or more than, vegetables, and when one set of trees are worn out on a wall, if the old soil cannot be entirely replaced with fresh, it will be far better to trench it up and plant a distinct kind of tree, and Pears will succeed stone fruits well. And if we could get into the way of looking upon our wall trees more as portable objects, and less as fixtures, I am sure the result would be more satisfactory. Thus, if a tree does not seem quite at home, lifting its roots, or moving it to a fresh site, will generally bring it back to health, and if the first symptoms of derangement are observed and acted on there need be no unhealthy trees. Pears succeed well in pots when grafted on the Quince, and the same remarks I have made about Apples on the Paradise are equally applicable to Pears. A collection of Pears in pots will be a most interesting study, and a large number might be sheltered in spring

till the frosts were past in a comparatively small house, and then half or two-thirds might be plunged in the open air.

TWELVE GOOD PEARS FOR ORCHARD PLANTING AS STANDARDS.—Bon Chrétien (Williams'), Hessel, Beurré de Capiaumont, Beurré Hardy, Beurré Diel, Suffolk Thorn, Swan's Egg, Thompson's, Knight's Monarch, Marie Louise, Aston Town, and Louise Bonne of Jersey.

A FEW GOOD PEARS FOR PYRAMIDS ON QUINCE.—Williams' Bon Chrétien, Beurré d'Amanlis, White Doyenné, Louise Bonne of Jersey, Marie Louise d'Uccle, Beurré Superfin, Beurré de Capiaumont, Beurré Clairgeau, Beurré Giffard, Ne Plus Meuris, Pitmaston Duchess, Josephine de Malines, Beurré d'Anjou, Baronne de Mello, and Beurré Bachelier.

Propagation.

Little need be said of this here, as Pears and Apples are much alike in their nature, and are usually grafted in the same manner in spring. But both Pears and Apples may be budded in summer in the same way as stone fruits usually are, and budded trees are quite as good as grafted ones. The common Hawthorn and other kinds of Thorns have at various times been recommended as stocks for Pears, and probably some kinds may succeed on them, but it is a good many years ago since I first saw it used for the purpose, and in all the experiments I have seen carried out the trees were short-lived. But this is a matter that requires to be taken in hand by some patient, careful experimenter with ample means at his disposal to test the matter thoroughly, not only as regards the common white Thorn, but the stronger-growing Thorns, such as the Cockspur, might be tried.

Referring again for a moment to the question of pot culture for Pears, what an opportunity it would give to the hybridist to try experiments in crossing various varieties. Fertility, size, and flavour might all be probably obtained in the same trees by such a judicious selection of the parents as could be made with a collection of trees of all the best kinds in pots under glass. Most of our fruits have hitherto been raised in a haphazard kind of way, but if the suggestion here thrown out could be acted on, it might be reduced to a system, with many chances in favour of securing any given result.

E. HOBDAV.

—I can endorse all that "J. S. W." says (p. 319) on fruit culture. I remember well the time we used to spend in tying down the shoots of Pear trees in a large place where I once was at. Bending down the shoots does, however, no doubt to a certain extent restrict growth, and as a consequence results in the production of fruit buds. What I should prefer in such places would be to do away with such trees as "J. S. W." recommends, and make an orchard in accordance with the size or requirements of the household. Give us less kitchen garden if you will, but in doing so remove nine-tenths of the fruit trees, so that the resources at command may be carried on more profitably. Gardening in these times must advance with other things, and in forming gardens due regard should be given to make them profitable. —J. S. T.

KENTISH FRUIT GARDENS.

PRUNING and digging and other operations connected with what may be termed the winter cultivation of fruit is now complete, for although delayed in some cases by adverse weather beyond the usual date, extra exertions have been used during the last few weeks to fetch up all arrears, and now the work claiming attention is of a lighter character, and one of the most important operations now being carried on or in preparation for is that of grafting, for as sorts vary in popularity in the markets they are more or less rapidly increased by means of grafting, and in carrying out this operation on a large scale, although some use grafting-wax the majority keep to the older system of clayey loam mixed with cow manure for encasing the grafts to exclude the air, and when this is well prepared by thoroughly mixing and working it up like soft putty, and put on by experienced hands and bound on with a little bass matting, there will not be 1 per cent. of failures or any necessity for recovering the grafts after they are once covered in, but of course much depends on the condition of stock and scions, and the latter should now be securely laid in by the heels in a cool, shaded position where no sun can reach them, for if at all withered or shrunken the labour of grafting will be in vain. Any young or freshly-planted trees should be securely staked before they get heavy with leaf, for although a little movement of the top of the tree may be beneficial to the root action of a tree, yet from the necessity for long stems where the soil is under-cropped with grass and fed off with stock, or as in many cases with bush fruits growing under them, it is absolutely necessary to keep the head of the tree as nearly erect as possible, and various means have to be resorted to. In orchards laid down with grass, a close

fence sufficiently high to keep whatever stock is let in to graze from barking the stem must be extemporised, but where the soil is cropped beneath the object is merely to fasten the tree to prevent excessive wind waving, and as dwarf-stemmed, or what are called half standards, are generally preferred for such positions, two stout stumps are driven into the ground about 1 ft. clear of the stem, and a cross rail nailed to them, to which the tree is securely fastened just below where it branches out into a head, and if this is carefully done by encasing the stem with haybands to prevent the bark chafing, such supports will last for several years, or until the trees will stand without support. I may mention that Chestnut stakes or posts are preferred here, and when dipped in tar before being used they last for many years; I may add that in fruit culture for market everything is done to minimise labour, for unless the cost of production is kept down to the lowest possible limit, it will not prove a profitable investment; therefore, the whole aim of the cultivator is to get the largest quantity of fruit from a given quantity of land, and for this reason the trees are planted thicker than in private gardens, and in most cases spreading bushes of Apple, Pear, or Plum are planted alternately with the taller standards, so that every foot of space is utilised. Fancy modes of training are unknown in this neighbourhood, except in private gardens, and they are rapidly being replaced by trees, that never get a tie of any sort except to the stem, but are trained by means of the pruning; as, for instance, upright pyramid Pears are easily formed by always cutting to a bud, that is, pointing in the direction the following year's shoot is desired to take; or I might mention Filbert and Cob Nut bushes, that are the most carefully pruned of any fruit trees in this locality, and they are trained into a circular cup-shaped bush by continually cutting away the centre and leaving the outer branches, until the bush looks as if it had been bent into a mould. As a rule, the natural form that the tree or bush takes is the best, and anyone passing through the country here would have no difficulty in picking out all the leading sorts of fruits by their habit of growth alone, as the pruning is simply directed to the production of fine fruit of its respective kind; and when it can safely be reduced to a minimum, as in the Cherry and Apple, the trees are allowed to form beautiful, wide-spreading trees that will shortly make the country look like a vast garden. In cultivated land, under bush fruits where it is difficult to eradicate weeds in the summer from the dense shade, the prong-hoes will now be set to work to break down the land roughly dug up in the winter, and at the same time to pull up to the surface all strong, coarse-rooted weeds such as Docks, Crow's-foot, Dandelions, &c., which, when dried, are burned with clippings of hedges, &c., and as a finish to the whole the soil on each side the boundary hedges is carefully forked over, and Couch Grass and other weeds carefully picked out, for a good hedge can only be kept for a number of years by keeping it clean at the base. J. GROOM.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Cordon Pears.—Four years since a west wall, previously covered with Peach trees, was cleared and replanted with Marie Louise Pears—maidens, double worked on the Quince stock. There were fifty trees, each planted 2 ft. apart, and three were left out as not required. These were planted on the front of the 10-ft. border fronting the wall. All the trees have made good growth, have been kept spurred, and are now averaging 5 ft. in height. Although the border has had but slight dressings of manure the growth has been more robust than I anticipated from Quince stocks, but, perhaps, the strong growth results from the double working, the first grafts having been of some robust growing kind, perhaps Beurré d'Amanlis. At one end, where the roots from some near trees influence the border, the growth has been less strong, and now I find the trees at that end full of bloom spurs. Where the growth has been more robust and pruning more needful, there is a less proportion of bloom buds, but all have some. That next year will exhibit better results I have no doubt, and I shall be gratified if the trees this season show less need for hard pruning and make more fruit spurs. But the curious thing with regard to these trees is that whilst the cordons have had the advantage of the wall and the regular summer pruning, the three planted on the front of the border have simply been slightly thinned, and now are compact bushes literally covered with fruit buds. I should say that if all goes well the three will produce as much fruit as twenty of the cordon trees. This leads to the conviction that hard pruning of trees, even on the Quince, is a mistake, and that the natural character of the stock will the sooner produce fruitfulness if somewhat left alone.—A. D.

Culture of Water Melons.—The treatment required for the Water Melon does not differ materially from that generally accorded to the varieties in common cultivation in gardens. It revels

in strong heat throughout the growing season, but dislikes anything like undue confinement, and must have a large supply of good food to draw upon when in full growth, in combination with an almost unlimited supply of water at the roots. If these conditions can be accorded it, Water Melons in plenty will be the result. To sum up briefly, the requirements are heat, air, and moisture, both atmospheric and at the roots, and ample space for extension. The Water Melon grows with great freedom when vigorous, and unless it is so but little good will attend its culture. The Germans go in largely for Water Melons, and they plant them out on a mild hotbed under a cloche in May and allow them to ramble at their own sweet will all through the summer. The hot weather there just suits the Water Melon, and gives a large amount of fruit, but here it must be grown under glass. If your correspondent who has inquired upon this subject follows out the hints here given he may get plenty of Water Melons, but my advice would be rather occupy the space with a good approved kind like Golden Perfection.—J. CORNHILL.

Scraping Vines.—I agree with all that Mr. Wildsmith says (p. 284) against this practice, which I condemned years ago, seeing as I did its evil effects. When Vines, like other plants, have no use for their bark they cast it off, and it is barbarous to rob them of it before they naturally do so. As to cleaning the rods of insects, that can easily be done by smothering them under a thick liquid made of clay, lime, soft soap, and Tobacco water, and when washed off, as occurs through syringing, it leaves the stems bright and clean—a great point as regards securing healthy growth. For removing the confervæ off the stems of Peaches and other fruit trees, and leaving them with a polished-looking surface, I have found nicotine soap one of the best things I ever used, and, however strongly applied, it leaves no ill effects afterwards.—S. D.

SEASONABLE WORK.

Vines.—Although nights have been intensely cold, the bright, cloudless sky has favoured rapid development in late houses without straining the Vines. Attend well to disbudbing and tying down before the joints reach the glass, stop at the second or third joint beyond the bunch, and afterwards train laterals in sufficient quantity to cover the trellis with stout, healthy foliage; give abundance of tepid water to inside roots and syringe well, until the bunches reach the flowering stage, when they should be drawn out by closing with brisk sun heat every afternoon. Mid-season and Muscat houses now in flower must be encouraged with a moderately high temperature and buoyant atmosphere, but at the same time the extremes of syringing the bunches or exhausting the delicate young foliage by exposure to a dry, burning heat must be avoided; fertilise all the shy setters with Hamburgh pollen, giving a little extra attention to Black Morocco, one of our very best winter Grapes when well done, but unfortunately a complete failure when neglected: aim at a night temperature of 70° and run up to 80° by day, with an allowance of 10° more in bright weather; keep the air in gentle motion by ventilation and sprinkle all paths, walls, and floors with warm water at short intervals throughout the day. When the Grapes in early forced houses having passed the stoning process, another good watering with generous liquid will increase the size of berry and stimulate the roots for the colouring process, when moisture must be slightly reduced and air more freely admitted; but it must be borne in mind that Grapes ripened in May and June require more moisture up to the finish than would be good for them in September; moreover, the house should be closed for two or three hours on fine afternoons to ensure the full development of the berries.

Melons.—Although a strong heat is essential to the growth of good Melons, the Vines should be kept firm and the foliage stout by means of free ventilation on bright sunny mornings. In the early compartment all female blossoms must be fertilised, and when a crop has been secured pinch the points out of the shoots and thin the laterals to give room to the foliage. During the time the fruit is setting a high, dry temperature is recommended, but when it has attained the size of pigeons' eggs, feeding with good liquid and syringing may be followed up every afternoon. See that each plant carries evenly-matched fruit, otherwise one will rot the others. Support them on small pieces of board suspended from the trellis, keep the glass clean, never shade, and run up to 90° or 95° after closing.

SUCCESSIONS.—Get rid of old winter Cucumbers as they can be spared, and cleanse the house thoroughly. Scald the pits, and make preparations for turning out young Melon plants when the soil, consisting of stiff loam and old lime rubble, is sufficiently warmed. Vigorous young plants, grown without a check, do best. Train up sticks, and take care of all the stem leaves, which will do good service when the fruit is swelling off.

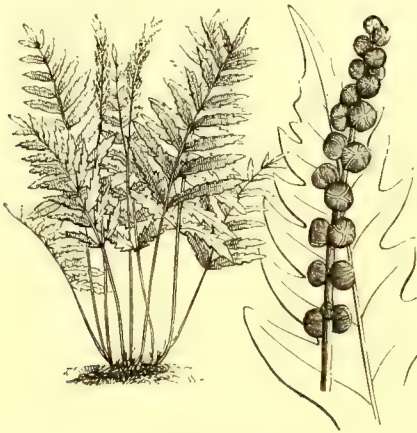
Pits and Frames must not be neglected. In March the external temperature frequently fell to 20°, and April may not be much better. Follow up the regular turning of the linings, taking the back and front alternately, and see that the lights, which must be kept clean, are well covered with mats every night. Earth up with sound, turfy loam. Keep the Vines thin and regularly trained until the time arrives for pinching. Watch closely for insects, and fumigate carefully for fly when the foliage is quite dry.

Cucumbers.—With plenty of heat and moisture at command the growth of fine Cucumbers from this time is no difficult matter. The common error which young beginners fall into is overcropping, and as this practice generally ends in an outbreak of red spider or thrip, it is an unprofitable course which cannot be too strongly condemned. Old plants will take unlimited supplies of liquid, heavy syringing, and good mulching; thin out the old foliage and young growths, and pinch the points more freely as solar heat increases. Work young spring sown or struck plants forward under liberal treatment as to heat and moisture, but guard against feeding until they come into bearing. The Cucumber delights in a temperature of 85° to 90° from sun heat after closing, and it keeps clean and healthy longest where the night temperature of 66° to 70° can be maintained by means of fermenting material and covering in lieu of firing. W. COLEMAN.

FERNS.

ONOCLEA SENSIBILIS.

THIS belongs to the group known as flowering Ferns, from the fact of the fertile frond being wholly or partially contracted, thereby giving it the appearance of an unopened spike of flowers, the more so as the spore cases resemble small buds. The fronds have a beautiful fresh light green colour, especially when they first make their appearance in spring. It is a native of North America, and an old inhabitant of our gardens. It is not very fastidious as regards soil and position, but still it succeeds best in a cool and moist situation, as, for instance, at the base of rockwork, or among the occupants of the American garden, especially if sheltered a little by neighbouring plants. In such a position the pale green hue of the fronds contrasts charmingly with the dark foliage of the majority of its associates. One thing to be observed by those who are desirous of raising this class of Ferns from spores is this: if the fronds are allowed to remain on the plants until they appear to be ripe, it will be found that the spore cases are open and the spores shed, as they drop while the fronds look quite green; therefore, the best way



Onoclea sensibilis.

is to cut off the frond as soon as indications of bursting are perceived, and to lay it in a sheet of paper for a few days, by which time all the spores will drop out. H. P.

SEASONABLE WORK.

Light.—I have spoken (p. 300) about the necessity for keeping clean the glass under which Ferns are grown, so as to admit the greatest amount of light possible to the interior of the structure. This I insist upon at all seasons of the year, and though I am now going to speak about the importance of shade, I have a great aversion to that shade being produced by dirt on the glass. The object in shading is not to make the place dark, but to soften the intense glare of the summer sun, and to break up the rays of light, so that their power to scorch is destroyed. Now this should be accomplished by such media as will simply lessen the intensity of light and heat, but which will not keep entirely out either the one or the other. The time when shading is required for Ferns under glass depends upon the aspect of the house and the slant of the roof, &c. In a house with a steep roof running east and west, Ferns will require shading on the south side about the middle of March if there is artificial heat in the house; while those in a house running north and south need not be shaded until the sun gets strong on the east side.

For Shading, I prefer blinds which can be rolled up immediately after the danger of scorching is past, and these I would keep rolled up always except during bright sunshine. The material should be open enough to admit a large amount of light, but not to permit the scorching of the plants. Where movable blinds cannot be obtained, the glass may be whitened over with a wash made of clean flour and warm water, which sticks well to the glass during most of the summer. It is best applied with a whitewash brush, and laid on even in thickness, which must be determined by the aspect of the house, the south side requiring heavier shade than any other. In regard to all kinds of shading, I would say, remove it as soon in autumn as the declining power of the sun will allow, and then let the plants have all the light they can get. I may here observe that some Ferns require more shade than others, and for a longer period, but these I hope to particularise at a future time.

Concerning Air, I advocate a complete change each day, opening the ventilators just enough to bring this about gradually. Great care should be taken to prevent any strong current of cold or dry air reaching the Ferns, for many kinds would suffer much under such influences. The

time to open the ventilators is when the temperature of the house is rising, in the forenoon, and they should be closed again early enough in the day to ensure considerable warmth from the sun's rays; at the same time water should be freely distributed about the paths and walls, but not on the fronds of the Ferns. When the house is thus closed and filled with moisture a rise of temperature of from 10° to 20° will be beneficial to the plants if allowed to decline gradually as darkness approaches. Of course the condition of the external air must be taken into account when opening the ventilators. On warm, quiet days they may be opened much wider and earlier than in cold windy weather, but never should they be opened wide enough to cause a rapid fall in the temperature of the house.

Watering or Syringing of Ferns grown in a close atmosphere is disastrous; where this is practised the foliage frequently turns dark coloured and unsightly if the water remains long on the fronds. It should be remembered that the artificial atmosphere of a glass-covered Fernery is unlike that out-of-doors, where there is constant circulation of air, by which the rain is soon dried off the foliage on which it falls, while in a close house, unless the ventilation is absolutely perfect, there are sure to be places where water will remain for many hours without evaporating from the fronds. Especially is this the case in cold, dull weather, and the result is ugly dark stains upon the foliage. I therefore recommend watering the paths and walls to produce moisture in the atmosphere when the house is warm, for in this moisture the plants delight; filmy Ferns—however, such as *Todeas*, *Hymenophyllums*, &c., require different treatment, for their foliage should never be allowed to get too dry. Dense moisture in the house, or else slight syringing is quite necessary for the well-being of these plants, and they should be especially guarded from currents of air and from strong light. W.

Birkenhead.

GARDEN DESTROYERS.

THE PEAR SAW-FLY.

(*ERIOCAMPA ADUMBRATA*.)

THIS insect is a member of that very destructive family, the saw-flies, of which I have already described four species. The grubs of the Pear saw-fly are known by the name of Pear slug worm, or slug grub, or slimy grub; they differ very much in appearance from those already described, and would probably at first sight be mistaken for the droppings of some bird; they are about $\frac{1}{2}$ in. long, with the first three segments of the body much enlarged, swollen, and almost entirely covering the head; the whole grub is covered with a thick greenish-black slime, which gives it very much the appearance of a small leech. They may be found on the following trees: Pear, Quince, Plum, Blackthorn, Whitethorn, Cherry, Bird Cherry and Willow; it does not appear quite certain to how many different species these, slimy grubs belong, but the question need not be entered into here; suffice it to say that the grubs are almost identical in appearance and habits, and may be destroyed by the same means. Among the trees mentioned as liable to the attacks of these grubs, Pear and Cherry trees, but particularly the former, suffer most, and in some places these trees have been seriously injured, and their fruit has not come to perfection, so weakened have they been by the ravages of these grubs. The slug worm feeds almost entirely on the upper surface of the leaves, generally beginning in the middle of a leaf, and not leaving it until the whole of the upper part or parenchyma is devoured; this not only gives the leaves a burnt or scorched appearance, but if the tree is badly attacked, it interferes with the flow of sap, that the growth of the tree and fruit is stopped, and the latter fall prematurely. The grubs remain quiet and almost motionless during the day, rousing themselves and feeding at night time. When they change their skins they retire to the undersides of the leaves until the operation is completed and they have regained their ordinary condition. This insect is generally distributed throughout this country, and over a considerable portion of the Continent; in the United States of America the ravages of the grubs are commoner and more formidable than they are here.

The only practicable way of destroying the saw-flies is by catching them in a butterfly net. The grubs may be picked off the trees by hand; they cling so tightly to the leaves, that shaking the branches is not of much use; or they may be easily destroyed by watering the leaves well with a solution of hellebore and water (1 oz. of the former to a pailful of water); this soon kills them; none which have been properly under the influence of this mixture will be alive the next day; watering the leaves thoroughly with strong soot and lime water or strong soap-suds, using a syringe or garden engine, has been found effective, and dusting the leaves with lime is also recommended. The earth underneath the trees should be turned over in the winter to the depth of 3 in. or 4 in., so that the cocoons of this insect which are formed underground may be exposed to the influence of the weather, and that birds which are always on the look-out for such dainties in the winter may be able to get at them. The saw-flies lay their eggs in June or July, the grubs from which are soon hatched, and

attain their full size in September or October, when, having already cast their skins three times, they undergo another change of skin, this time appearing of a dirty yellow colour and without the power of secreting slime or inflating the front portion of their bodies; they then descend the trees and bury themselves a few inches below the surface of the soil, where each spins a thin oval cocoon round itself; in these the grubs pass the winter, changing into

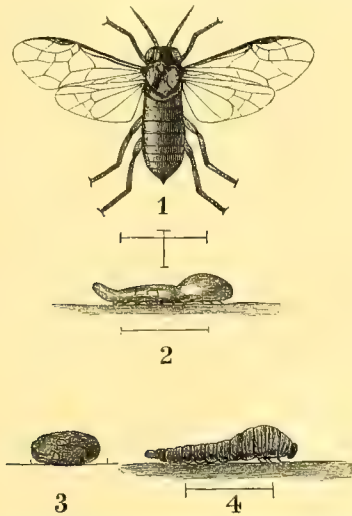


Fig. 1.—The Pear Saw-fly (magnified). Fig. 2.—Slug Worm (magnified). Fig. 3.—Cocoon (natural size). Fig. 4.—Slug Worm (magnified).

chrysalides or pupæ within the cocoon in spring; these cocoons are $\frac{3}{8}$ -in. long, and should be carefully looked for when the ground beneath the trees is being dug.

The saw-fly (fig. 1) is nearly $\frac{1}{2}$ in. in length, and measures about $\frac{1}{2}$ in. across the wings when they are fully expanded. The head, thorax, body, and legs are black and shining; the wings are somewhat smoky in colour, with black nervures; the antennæ are black and stoutish. The grub (figs. 2 and 4) is about $\frac{1}{2}$ in. long when full grown, brown or greenish-black in colour on the back and sides, but is yellowish-brown below; it is covered with a very viscid slimy coating, which gives it a smooth, shiny appearance, the joints



Slug Worm on Pear leaf.

of the body being scarcely visible; this slime is secreted from between the joints of the body, and is of a peculiar nature, having a most unpleasant smell, and the grub always appears moist even in the hottest sunshine; it is doubtless a very good protection against many enemies to which the grubs are particularly exposed, remaining as they do during the daytime on the upper surface of the leaves. A parasitic fly attempting to settle on the grubs would probably be much incommoded by this sticky covering, which, with the unpleasant smell, would also deter birds from interfering with them. They are furnished with ten pairs of legs, each joint of the body except the fourth and two terminal joints bearing a pair; the first three joints are much larger than the others (which gradually taper towards the

tail), and are capable of being inflated, so as to entirely cover the head; the two terminal joints are generally somewhat raised. After the grub has changed its skin for the last time, before making its cocoon it appears as a yellowish wrinkled grub with a black head; the body is still somewhat larger in front, but otherwise it is very unlike its former self. The cocoon (fig. 3) is oval, about $\frac{3}{8}$ in. in length, being rather shorter than the grub; the latter lies within it, in a somewhat curved position; it is formed of fine silk threads and small particles of earth, which harden and form a waterproof covering of a thin leathery texture.

G. S. S.

THE KITCHEN GARDEN.

NEW KINDS OF POTATOES.

ALTHOUGH some writers will deprecate new kinds of Potatoes, it is not probable that any check will be given to their production and sale, as it is found that for one who deprecates there are twenty willing to purchase and grow them. Undoubtedly, to many persons who garden the growth and testing of new or hitherto unknown kinds or things presents very attractive elements, and in Potatoes the testing of their table qualities is very interesting. It is wise in all matters relating to the descriptions of new things to take none of them for granted, but to test for one's own self, and where this is done exact conclusions are obtained, even though sometimes very disappointing. From several directions come sorts of Potatoes that will attract attention of this kind, and, as usual, American sorts are in force—indeed, the American raisers seem to beat home raisers in the race of Potato progression, perhaps because America offers a better field for the production of seed, or possibly because raisers there are more enterprising. Probably the handsomest red Kidney we have yet got from America is Mr. Bresee, and which seems to have found its way here by a chance rather than in the regular course of trade. It is yet but moderately dispersed, but as it is not only remarkably handsome, but a great cropper, it will be largely exhibited next autumn. Matchless is a flattish oval round, having a very pale pink skin, and is very handsome indeed. This kind was first sent over here under the name of Shelburne, but was not offered in trade. Then it is again sent as Matchless, and, curiously enough, a kind named Holborn Favourite is offered that is said to be as like to it as two peas. Whether all three are diverse or distinct the present season will show. This kind shows a less robust growth and improved table quality when grown from home-raised seed. Pride of America is one of Mr. Brownell's seedlings, and is described as an improved Snowflake, but more robust. It is certainly very handsome and of whiter flesh. Probably, if found sufficiently distinct, it will displace the Snowflake. Mammoth Pearl is a big round kind, much like a large King of the Earlies. It will not make any reputation here; indeed, too many of the American sorts have not been found good enough to retain. In another direction comes a huge, coarse Potato like the old Eureka, named the White Elephant; this will not be much seen on our show tables, neither is it likely will St. Patrick, the tubers of which resemble our Magnum Bonum, but are coarser and deeper eyed. Beauty of Norfolk is evidently of the Rose family, and resembles Beauty of Hebron. American Purple, though not exactly new, is yet comparatively little known. It is a very handsome dark purple-skinned Potato, of long kidney shape, a heavy cropper, the flesh white and mealy. Of home-raised kinds, Feltham White, a handsome early white round of fine quality, is offered, as also is the Eight Weeks, a first early round. Wiltshire Snowflake is a home-raised seedling from the Snowflake, a great cropper, and of excellent quality; and Wormleighton Seedling, said to be a seedling from the Belgian Kidney, is exceedingly like Magnum Bonum. Reading Hero is a handsome flat-round white kind, of fine quality, and Filbasket and Surprise are probably some of Mr. Fenn's latest sorts, and they are assuredly of fine table quality. This imperfect list will show that there is no lack of new Potatoes on offer. The following twelve kinds give a selection that new growers will find first-rate either for eating or exhibition: Woodstock Kidney, Covent Garden Perfection, and Advance, white kidneys; Beauty of Hebron, Bountiful, and American Purple, coloured kidneys; Schoolmaster, White Emperor, and Hooper's Round White, white rounds; and Vicar of Laleham, Grampian, and Radstock Beauty, coloured rounds.

A. D.

Silver-skinned Onions.—Many value these for pickling, and as they are of the easiest culture every one possessing a piece of land may grow them. They may be sown from now until the end of May. Unlike other Onions, a small bulb is most desired in their case, and this is best secured by sowing them broadcast in beds where the soil is rather poor.—J. MUIR.

SAWDUST AS A MANURE.

LIKE Mr. Baines, I have tried sawdust in many ways, but in only one way have I been pleased with it. I have never used any in the garden, for I never have faith enough in it to lumber garden ground with it, but to get rid of it I have used a good deal of it on both arable and pasture land, and all that ever I could see it made grow was fungus. The way that I used it, and which answers well, is after the cows are cleared out in the morning give the walk and gutters behind them a good sprinkling; then when they are cleared out again sweep the sawdust from the walk into the gutter; then the sawdust forms a good vehicle for saving the urine, which, as everyone knows, is otherwise nearly all lost; but then this only shows that it can be made very useful, not that there is any coodness in the material itself. Johnstone, in his "Agricultural Chemistry," under the head of "Manuring with Dry Vegetable Matter," says: "Almost everyone knows that the sawdust of most common woods decays very slowly—so slowly, that it is rare to meet with a practical farmer who considers it worth the trouble to mix it with his composts. Again, dry vegetable matter of any kind may, if in a sufficient state of division, be added with benefit to the soil. Even sawdust applied largely to the land has been found to improve it—little at first, more during the second year after it was applied, still more the third, and most of all the fourth season after it was mixed with the soil. That any dry vegetable matter therefore does not produce an immediate effect ought not to induce the practical farmer to despise the application to his land either alone or in the form of a compost of everything he can readily obtain. If his fields are not already very rich in vegetable matter, both he and they will be ultimately benefited by such additions to the soil." Now, it comes to what I have alluded to in respect to cow-sheds. He (Johnstone) says, saturated with ammonical liquor or liquid manure, sawdust has been profitably used, and without further addition in the raising of Turnips. It may also be charred either by burning or by alternate layers of quicklime, and thus beneficially applied to the land.

W. B.

—Mr. Baines (p. 266) is quite right, as regards the manurial properties of sawdust, when he says it contains nothing of value beyond the urine and droppings from the stables. Turners' chips, used as Mr. Baines states, I have not tried, but have no doubt they would make a good manure, as turners employ scarcely any of the resinous woods. Any of your readers who have lived in the neighbourhood of Pine woods must have observed the barrenness that exists about some of the old saw-mill stations, where for yards vegetation is a complete blank, everything having been killed, and where for years afterwards the commonest weeds even refuse to grow. In one form only would I admit sawdust in the garden, viz., that of ashes.—J. KNIGHT, *Epsom*.

Sutton's Magnum Bonum Potato in America.—

As our readers are aware, this is a new English seedling which has been sent out by Messrs. Sutton, of Reading, England, and, so far as we learn, given very general satisfaction in England. It is now offered in this country, and the few tests that have been made show that, contrary to the rule with English seedling Potatoes, it promises to be of some value here as well. The quality of the Magnum Bonum is very good, as we judge from having cooked and eaten a trial quantity of seed sent to us by a friend. The Early Rose, and in fact all Potatoes of that class, though flaky without, become waxy within, and this soggyiness increases as the Potatoes grow old. The Magnum Bonum, though the outside does not crumble or flake off when boiled, is still mealy within and possessed of a richness quite peculiar to itself. We have on the one hand the "strong flavoured" Potatoes; on the other the tasteless kinds, well represented by the Alpha, the Early and Late Rose, Snowflake, Early Ohio, &c. We may speak of these as mealy, pure, fine-grained, of excellent quality, &c., but really their excellence, after all, depends upon their meanness; for they are so nearly destitute of flavour that nobody could determine one from another when cooked. The Magnum Bonum is to us a relief from such tasteless varieties, while its peculiarly rich flavour is not that which can be classed as "strong."—*The Rural New Yorker*.

Black-seeded Brown Cos Lettuce.—I can fully confirm all that has been said in favour of this Lettuce. I have for years past sown it in the first week in July, planted from 2000 to 3000 of it out in August on good, rich land, and have begun cutting in Oct. fine hearted plants of it. When frost puts in an appearance I cover all over with bracken, and thus I am enabled to cut the whole winter through—this winter being no exception to the rule. My sowing for spring use I make in the middle of August, planting outside at once. I have a large stock of good stubby plants just now looking none the worse for the winter.—R. GILBERT, *Burghley*.

Vegetables and the Frost.—Although vegetables did not appear to have suffered severely after the late hard frosts, they are now showing more extensive signs of its severity. Broccoli that looked healthy a week or two ago have gradually gone off, until but very few are left; and Parsley and many other crops have rotted off at the crowns. I never remember Brussels Sprouts being so severely hit before, quite half the crop being spoiled. Celery has gone off in a wholesale way, and even young spring Cabbages are very much crippled. It is somewhat singular that such dwarf crops should have suffered so severely, as they were mostly covered with snow during the worst of the frost. As a matter of course, everything that can be pushed on in pits or houses will be doubly welcome for the next month or two.—J. G., *Linton*.

Best Late Pea.—As many will soon be thinking of sowing late Peas, allow me to say that Laxton's Omega is the best late Pea with which I am acquainted. Its flavour even at the very end of the season is excellent, and the pods fill well up to the very last, much better than those of Ne Plus Ultra or any other of the late sorts. Omega is not subject to mildew, and only grows from 3 ft. to 4 ft. in height, which is another strong point in its favour, as most varieties in October or later run up so high and make so much superfluous straw that their energies are far more taken up and exhausted in this way than in producing well-filled pods.—J. MUIR, *Margam Park, Taibach*.

Drying Potatoes.—Mr. B. Wing, of Rochester, who has been largely engaged in this business, first slices the Potatoes, then puts them in a steam box three or four minutes to keep the starch in, and then subjects them to drying. If not placed in the steam box, the starch would come out. When used, they are soaked, and are then like fresh Potatoes.—*Scientific American*.

SEASONABLE WORK.

Forced Vegetables.—One of the most useful, and at the same time most troublesome, vegetables when grown with other subjects is the French Bean; hence the importance of getting a regular succession at work in pits, where moist bottom heat from fermenting material is antagonistic to red spider. For giving the earliest succession to house Beans, Osborn's Sion House or Fulmer's sown in 10-in. pots, and plunged in fermenting leaves placed in brick pits or deep frames, soon come into bearing. As a succession to these, space occupied by Potatoes, Asparagus, &c., may be planted in the ordinary way, say 18 in. from row to row, and 6 in. apart in the row. If the original bed has become cold, turn the centre, add a few fresh leaves, renovate linings, and plant or sow when the soil becomes warm. The greatest enemy to the plants in these fireless structures is stagnant moisture, but this is easily overcome by timely attention to linings and ventilation. Another sowing of early Carrot may be made to precede those recently sown out of doors, and well sprouted Potatoes may be planted in cold pits for a like purpose. Earth forward Potatoes with dry warm soil. Thin Carrots and ventilate freely to prevent them from becoming drawn. Where a slight hot-bed was made up in February for Cauliflowers, Lettuce, Celery, and Brussels Sprouts, the plants will be greatly superior to others raised thickly in boxes. Keep them hardy and prick out as they become ready. Sowings of Chilies, Capsicums, Tomatoes, Vegetable Marrows, Ridge Cucumbers, Bush and Sweet Basil, and Marjoram may be made at once. Sow thinly in light soil and keep the young plants near the glass. Pot on Tomatoes for fruiting in pots. Give plenty of heat and light. Stop all side shoots, and fill up the pots with rich top-dressing as soon as the fruit is set.

W. COLEMAN.

A Large Wasp's Nest.—During last summer, my fruit garden having suffered from the depredations of countless wasps, I, after much searching, discovered the abode of my persecutors, but, unfortunately, in such a position as to defy my disturbing them, the nest being under the slate roof of the dwelling-house of my neighbour. To burn out the robbers was out of the question, unless I felt disposed to act the part of an incendiary, to which, for obvious reasons, my neighbour objected. Consequently, my only course was to grin and bear it from day to day until the early frosts of last autumn carried off by degrees my enemies, but not, unfortunately, till they had first carried off my fruit. From curiosity, a few days since, I ordered my man to put a ladder up to the roof of the building wherein dwelt last summer my unwelcome visitors, in order to discover if anything remained of their abode. The result has well repaid my trouble. I have as great a curiosity as may possibly be seen in the shape of the nest of these wasps. It is in form nearly round, is 45 in. in circumference, contains something like seven tiers of comb supported one above the other by struts or props; and, as each layer or tier must have contained (from the number of vacant cells), from 2000 to 3000 wasps, I estimate the domicile to have housed from 15,000 to 20,000 of my foes. The usual exterior layers, of apparently the thinnest of tissue, overlapping each other, resembling shells, and beautifully

traced, have been kept intact from the position of the nest. I have in my younger days, boy-like, destroyed many wasps' nests, but never before have I seen one at all resembling this in beauty and size.—H. O. C., in *Field*.

ORCHIDS.

DIFFERENCE IN TREATMENT REQUIRED BY ORCHIDS.

THE cultural treatment required by the different divisions of the numerous family of Orchids, except in difference of temperature, is not unusually supposed to be much more of a uniform character than in practice is found to answer. That this idea is entertained not alone by those who are beginners in the cultivation of Orchids, but also amongst older hands, is borne out by results, for it often happens that even old hands are successful with one section of the family, yet either fail, or succeed only indifferently with another section. Take, for instance, the numerous species included amongst what are usually termed Mexican or intermediate temperature plants and the East Indian or warmer division. It is a common occurrence that an individual who succeeds in a way leaving nothing to be desired with the former, fails in getting the latter to do anything near so well, or the reverse—if he succeeds with the latter, the former do not thrive to a similar extent. The measure of success is often more partial; for it frequently happens that the different species comprising a single genera refuse to thrive at the hands of a cultivator who succeeds with others. The natural conclusion to which this leads is that the section which fail to grow get something in their treatment which they do not like, or want something which they do not get.

Cattleyas and Lælias.—The numerous family of Cattleyas and Lælias may be instanced in evidence of what I have stated, for many who grow Orchids do not succeed with them near so well as they do with others, and yet it cannot be said that they are naturally tender or unmanageable; for in many places they continue to thrive and keep on increasing for an indefinite time, evincing no sign of natural weakness or of an absence of all that is requisite, not alone for the time being, but to preserve a healthy existence. In speaking thus of Cattleyas and their near allies, the Lælias, as a matter of course, I do not include such species as *C. superba*, *C. citrina*, *Lælia majalis*, and others that require exceptional treatment to induce them to thrive, but of the genera, as represented by species like *C. Mossiae*, *C. Trianae*, *C. speciosissima*, *C. crispa*, *C. labiata*, in their many forms, and of the two-leaved kinds, such as *C. Skinneri*, *C. intermedia*, *C. Loddigesii*, *C. amethystoglossa*, and *C. guttata*; and of Lælias, like *L. purpurata*, *L. Perrini*, *L. cinnabarina*, *L. elegans*, and others of similar character. The above comprise an important section of the finest and most generally favourite kinds of Orchids in cultivation, unequalled for the gorgeous character of their flowers when treated in accordance with their wants.

Inability of Cattleyas and Lælias to bear much Water at the Roots.—One of the chief if not the sole reason why these Orchids fail to do well is that they are so frequently overwatered at the roots. Wherever the material in which Cattleyas and Lælias are potted is kept, even during the growing season, in anything approaching so wet a condition as most other Orchids absolutely require to be, their roots are certain to die prematurely; not only is this so with the old roots, but also with the new ones in course of formation, as these will rot if in material that is even a little too moist; in fact, it may be said that in the matter of water they require to be treated completely opposite to most others. Anyone who takes the trouble to notice the condition to which these plants are reduced when even a portion of their roots die prematurely will easily understand its extreme weakening influence. When the roots that have been formed in past years, say for two or three seasons previous, through any cause happen to die wholly right back to the base of the bulbs from which they proceed, that portion of the stem can never produce any more, consequently there is nothing to support the bulbs and leaves above; the result of which is that the bulbs shrivel and the leaves they bear die and fall off long before their time, the bulbs never afterwards regaining their wonted plump condition, and if, in addition, the roots proceeding from the leading growth are also killed, leaving the plants, as is not unusually seen, scarcely able to support themselves in the pots. If they do not die outright the growth made for a considerable time after, even under good treatment, cannot be otherwise than extremely weak. In determining the amount of root-moisture the plants will bear it is necessary to be guided by the more or less light description of the house in which they are grown, the near or distant position to the

roof they are placed, which in like manner influences the amount of light they receive. For these, in common with other Orchids, will take considerably more water when under the influence of a full volume of light than they will do with if kept darker, as under the former condition not only does the water given dry up quicker, but the strengthening influence of the light enables the plant to assimilate more moisture. The extent to which air is admitted and atmospheric moisture kept up will obviously also have a decided influence upon the amount of water which may be given to the roots. I am so far presuming that the plants are grown in pots in the ordinary way; if on blocks with little moisture holding matter about their roots, so that the water is soon dried up after being given, the case is altogether different. But Cattleyas and Lælias of the description under notice are not generally kept on blocks longer than to get them fairly established after being imported, or so placed with a view to bring them round after suffering the loss of their roots. The remarks apply to the growing season, from the time growth is fully completed in the autumn, through the winter, until the flowers of the spring-blooming kinds, or the young growth of such as bloom in the summer or autumn, begin to move. This section of plants requires very little water giving to the soil at all, for if furnished with a full complement of living roots they will not shrivel so as to receive injury, even if the soil is kept so dry as hardly to show a vestige of moisture; on the other hand, the roots already in existence will keep on growing in the dry material—an unmistakeable evidence of the healthy condition of the plants.

T. BAINES.

Sarcochilus Fitzgeraldi.—This extremely pretty Australian Orchid is now finely in flower in Messrs. Veitch & Sons' nursery, Chelsea. It grows about 1 ft. high, and has a tuft of lance-shaped root leaves from the base of which springs the erect raceme of flowers, about 1 in. across. The petals and sepals are of waxy whiteness, and at the base of each is a cluster of transverse bars of rosy purple. The lip is white and dashed with lemon yellow. It is grown at Chelsea very successfully in small suspended Teak wood baskets in an intermediate house. It is a matter of regret that such an exquisite little Orchid should be so rare, but probably it may some day be imported in quantity. A good illustration of it is given in *THE GARDEN* (p. 453, Vol. XV.).

Cymbidium Devonianum.—This rare species, though not so showy as many others, is, however, handsome and remarkably distinct. In habit of growth it resembles other cultivated kinds, the leaves being long and narrow, and gracefully reflexed, and the pseudo-bulbs are roundish. It bears fine racemes of bloom from 1 ft. to 1½ ft. in length produced from the base of the growths and hang down after the manner of *C. aloifolium*. The colour of the petals and sepals is a brownish-cream colour, but the lip is a rich purplish-crimson tint. It is a native of the Khosea Hills, in India, where it was discovered and sent to Chatsworth some fifty years ago by the late Mr. Gibson, who gathered it from the trunks of decayed trees, or from the hollows or cavities of old trees, which had become filled up with rich, decayed vegetable mould. It is now finely in flower in Mr. Bull's nursery at Chelsea.

CATTLEYA MOSSIE AND ITS VARIETIES.

THIS, one of the most variable of all Orchids, is especially deserving of notice, as being also one of the most beautiful, and it has the additional advantage of being naturally of free growth, and therefore not difficult to manage. Of its fifty or more varieties, all are well worth growing; and the sight of a dozen good plants in flower of the more select of them is certainly a sight striking in the extreme to those who are fond of Orchids. *Cattleya Mossiae* itself, with from twenty to fifty flowers on it, is a lovely object; in a dry, warm conservatory, and under such conditions, its flowers will last in beauty for a month or even more. As just stated, the culture of this species presents no unusual difficulty. It should be repotted (when that operation is really necessary) after the young growth breaks away, but before the young rootlets are emitted from the rhizome near its base. A compost of fibrous peat and living Sphagnum suits it well, and but little more than a layer of it is required over the top of a clean pot, well drained with nodules of broken crocks and charcoal. Before repotting allow the old compost to become rather dry, and place the plant in a cooler temperature for a few days, a course of treatment which helps materially to loosen those thong-like roots, which, having adhered tenaciously to the pot sides, would inevitably become broken if turned out of the pots without the above course of treatment being observed. It sometimes happens that repotting is essential, not so much from want of root, or growth space as on account of the compost having become sour and soddened, and in this case it is best to pick away the old soil with a pointed stick, or to syringe it away with tepid

water without disturbing the roots, after which replace the old drainage and compost with fresh and suitable material as before. When well grown in a warm, airy house, Cattleyas make considerable root-growth, and on retaining these roots in a plump and sound condition the welfare and future blooming powers of the plants depend. No Orchids are more impatient of too much root moisture than Cattleyas. Some of the finest specimens were originally started after importation on blocks and eventually these were placed in pots and compost packed around block and plant, so that the latter was well



Cattleya Mossiae.

elevated above the rim of the pot. The typical *Cattleya Mossiae* may now be purchased for a few shillings. It blooms during the summer months, bearing flowers often 6 in. or more across; its sepals and petals are lilac, or soft rosy-carmine; lip, white, lilac, or rose coloured, with a white margin and a yellow or orange blotch on the throat; the apical portion veined with rich crimson-purple, or irregularly embroidered with magenta stains. In purchasing imported plants of this species, one has always the chance of securing varieties equal to or even superior to those already in cultivation.

C.

EPIDENDRUM VITELLINUM.

THIS very ornamental and easily grown Orchid is quite distinct from all other *Epidendras* in its dwarf glaucous growth, and the rich yolk-of-egg colour of its wax-like flowers. Not the least attractive feature possessed by this plant is its free blooming habit, every young growth



Epidendrum vitellinum.

yielding its quota of flowers, and these last are extremely durable, remaining as they do in a moderately dry atmosphere forty to fifty days in fresh and enjoyable condition. In habit, colour of the leaves, and in blossom it affords a pleasing contrast with the other occupants of the cool or intermediate house, and is amenable either to culture on a block of wood or in a pot. Small plants of it now imported in immense quantities succeed remarkably well in shallow pans suspended from the roof in a compost of fibrous peat and living Sphagnum.

CANDIDA.

Dendrobium senile.—Among curious Orchids, or those that are generally relegated as botanical species, this is one of the most remarkable, and by no means unattractive when in flower. The bulbs grow from 4 in. to 5 in. long, and are covered with a dense coating of soft hair. The flowers are clear yellow, and about 1 in. across, and are therefore very showy. It was one of the numerous discoveries of the Rev. C. S. Parish in Burnah some years ago.

Masdevallia Chelsoni.—This pretty and interesting hybrid is this season much finer than when it was last exhibited, the colours being brighter and the flowers of larger size. The parents are *M. Veitchiana* and *M. amabilis*, and the hybrid partakes in a striking manner of the characters of both these species. It is now flowering finely in the Royal Exotic Nursery, Chelsea.

NOTES FROM SWANLEY.

AT all seasons of the year Messrs. H. Cannell & Sons' nurseries at Swanley are more or less gay with flowers. Even in the depth of winter a brilliant display is maintained by means of *Pelargoniums*, winter-flowering *Salvias*, and various other kinds of plants.

Zonal Pelargoniums, consisting of some 300 or 400 sorts, are in great beauty, and have been so, indeed, all through the winter. Houses 100 ft. long filled to overflowing with large plants of these *Pelargoniums*, furnished copiously with huge trusses of bloom, are a sight well worth seeing. These *Pelargoniums* are managed so as to obtain a large amount of winter bloom, and that very successfully, as visitors to the monthly exhibitions at South Kensington can testify, for scarcely has a meeting taken place there without the usual exhibition of cut blooms of zonal *Pelargoniums* from Swanley. As it may aid those who wish to make a selection of the best kinds of *Pelargoniums* for such purposes, we subjoin a short list of the finest, including some of the new kinds, which in most cases are decided improvements on older sorts. Amongst novelties, one of the finest is *W. B. Miller*, which possesses in a remarkable degree the good qualities of the old favourite *Vesuvius*, but the flowers are more perfect in form, larger in size, and more brilliant, though not glaring scarlet. The best white-flowered zonal is *Eureka*, certificated a short time ago at South Kensington. It is by far the finest white yet raised, the flowers being devoid of all pinky tinge with which some whites are suffused. These are both first-class winter-flowering varieties, and both are in perfection at Swanley.

Other excellent winter kinds are, *Niobe*, soft cerise; *Beatrix*, cerise, tinted with scarlet; *Guinea*, the nearest approach to a yellow tint, the flowers being a brilliant orange scarlet, very distinct from all others; *H. H. Crichton*, deep crimson, with white centre, large flowers and truss; *Lizzie Brooks*, rosy scarlet; *'Kleon*, deep vivid scarlet flowers of unusually fine form and size; *Dr. John Denny*, crimson with scarlet blotches; *Mrs. Whiteley*, bright scarlet white eye; *Henry Jacoby*, very deep crimson; *Aida*, white suffused with pink; *Mrs. Strutt*, pink shaded with purple; *Mrs. Clifton* and *President McMahon*, two of the best salmon-tinted kinds; *Jeanne d'Arc*, a good white with large trusses. These form a good selection, and embrace nearly, if not quite, all the tints obtainable in the single flowered kinds.

Among the best double zonals are *F. V. Raspail*, one of *Lemoine's* best varieties, having large flowers of a deep, rich, scarlet, borne profusely on compact growing plants; *Gambetta*, dark red, attractive large truss; *Emile de Girardin*, *Urania*, *Jules Simon*, all fine rose coloured sorts; *Cæsar Borgia*, deep crimson; *Henri Cannell*, *Aglaia*, and *Ernest Lauth* among the best purple tinted kinds and *Candidissima plena*, *Madame Thiers*, and *Madame Baltet* among the best white.

The beautiful new hybrid Ivy-leaf must not be omitted. It was raised by *M. Sisley*, and named *Beauté de Lyon*. The flowers and truss are very large for an Ivy-leaved variety, and the colour is a beautiful soft cerise. As a basket plant, or for growing in the ordinary way in pots, we have met with none more pleasing.

Winter-flowering Species of Fuchsia.—These are not only valuable for flowering in winter, but in spring, and even up to the time when the ordinary *Fuchsia* blooms. At Swanley, where they were particularly fine, and well worthy general culture. One of the best was *F. penduliflora*, a kind similar to, if not identical with, *F. boliviana*, figured some time ago in *THE GARDEN*. It has pendulous clusters of rosy-crimson tubular flowers about 2 in. in length, and the graceful profusion with which they are produced renders this a most attractive plant and one easily grown. The various hybrids which have been raised between *F. Dominiana* and *F. serratifolia* are likewise very fine—one in particular, that which was certificated at South Kensington and named *F. rubra*. The flowers of this are about 3 in. in length, the tube crimson, and the corolla bright scarlet. It is very floriferous and of a fine bold

habit of growth, properties which cannot fail to make it popular as a winter-flowering plant. It is said to have been in flower since last October. *F. splendens* and *F. cordifolia*, two species very similar to each other, are likewise excellent kinds for winter flowering, and when profusely furnished with bloom, as the Swanley plants were when we saw them, they are indeed extremely effective.

Doub'e Cinerarias.—These are rapidly becoming popular, judging by the large quantities of them grown, one-half of a 100-ft. house here being entirely occupied by them. The varieties, too, are more numerous, and represent a greater diversity of colour than we have hitherto seen there, being bright violets, blues, purples, crimsons, and some with a harmonious blending of two or more colours in each bloom, others flashed and tipped in a very showy manner. There are several kinds named in order to facilitate distribution, for they are grown principally from cuttings and offsets; therefore any particular kind may be procured, which of course is not the case when the plants are derived from seeds. Most of the sorts have been popularly named; for example, there is a light rose called Rosina; Mary, rich magenta-rose; Kate, white, flaked with rosy-pink; Phoebe, white, mottled and streaked with purple-pink; Ada, light blue; and several others, all of which strikingly illustrate what a great improvement in these flowers has been effected since the first sort was introduced to English cultivators from Germany. All the sorts seem to be uniformly of robust dwarf growth, and very floriferous, and as easily grown as their better known congeners, the single kinds. A curious point in connection with their flowering is that the incipient flower-heads look at first like a small tuft of green metamorphosed leaves, and gradually assume the ultimate colour of the flower; but even when the tint is clear and decided the head continues to grow larger for some time afterwards. We have recently had proof of their endurance in a cut state, some put in water about three weeks ago being still in perfection; the heads have even swollen considerably, and formed quite compact rosettes, just the sort of flower which is so much in vogue as button-hole bouquets, and we doubt not but before long they will be grown largely by market growers for cut blooms in winter and spring.

The Single Cinerarias at Swanley are this year also very fine, the plants being not only unusually numerous, but well grown. They represent some extremely fine sorts as regards size, quality, and variety of tint, and, therefore, they make a brilliant display, occupying, as they do, an entire house 100 ft. long and part of another. The strain is also characterised by a robust dwarf growth, unhappily not always associated with circular blooms. Like the double kinds, the best and most distinct are perpetuated from year to year by means of offsets, so that a stock of any particular sort is always obtainable. The named kinds are numerous, the finest of them being Lustrous, Loveliness, Boy in Blue, Gem, Othello, Gigantea, Intensity, Géant des Batailles, Corregio, Velvety, and Oxford Blue. These comprise a representative selection as regards colours, which vary from the brightest crimson to the deepest blue, the intermediate shades being numerous and delicate. It is interesting to observe the difference that exists with regard to what is technically termed the "quality" of the flower between these high-bred varieties and the original type, *Cineraria crueuta* or *Webberiana*. In this species the petals, or more correctly the florets, are star-like, a form not at all in favour with florists.

The Chinese Primulas were on the wane, but enough remains to indicate how fine they have been, especially the newer sorts, which are far in advance of the older kinds as regards colour, such as Swanley red, purple, and white, three of the finest we have seen in their respective colours, the flowers being large and exquisitely fringed.

Violets.—These receive here special attention, and are grown on a large scale. All the best kinds are represented in the collection, but at a glance one may see, by the quantity grown, which are the most popular sorts. Among the doubles, Marie Louise and Neapolitan are the leading kinds, though their superiority will shortly be put to the test when a new kind named Venice becomes more plentiful. This has flowers in colour like those of Marie Louise, but considerably larger, forming a compact rosette of petals deliciously fragrant. There is also a new kind named Swanley White, which promises to be the finest double white yet raised. It is decidedly superior to Belle de Chatenay, being pure white, very double, and free as regards growth and flowering.

W. G.

Notice.—Readers who possess the GARDEN ANNUAL will greatly oblige the Editor by sending him the names of any good gardens in their vicinity omitted from it, and by making any needed corrections in it. Convenient printed forms for filling up will be sent by return of post on application to the "Editor," GARDEN ANNUAL, 37, Southampton Street, Strand, W.C.

THE EDITOR'S TABLE.

FROM Devon comes to us a little box of the Cape Pondweed, with bold, strong, and handsome flowers, and large leaves such as we do not see about London at this time of year, although it flowers with us in spring water. It was sent by Mr. F. Guson, Haldon House, Exeter, from a tank in the open air. His note concerning it will be read elsewhere. The flowers keep well and long in a room, but the leaves wither up at once.

George Paul has sent us from Cheshunt one of the brightest, loveliest flowers that have ever come to us, and that is the Barberry-leaved Rose, with rich yellow single flowers, having a splendid dark crimson centre. This is a flower that could only be spoiled by doubling, and it is certainly a single Rose that will help to bring into cultivation some of its beautiful sisters. The day of the single Rose has yet to come, but it will not be long in coming. Free growing, free flowering Roses, with good bold habit and plenty of single flowers, would help much in the formation of really beautiful Rose gardens.

Among our table plants for the few past days are flowers of a magenta coloured variety of *Anemone stellata*, which is one of the loveliest of Windflowers. It was sent by Mr. Archer-Hinds from South Devon. These star *Anemones* of South France and Italy do not seem to get on so well in our gardens as the large *A. coronaria*, but on warm soils they ought to thrive. Why does not some one largely increase and "fix" this bright coloured kind, which would be very precious for the spring garden?

Since last week we had the pleasure of seeing one of the most beautiful aspects of spring flower life—a meadow of Daffodils in blossom in Sussex, the flowers being dotted all over it, and dancing in the sun, perfectly untouched by the harsh wind blowing for days. The garden *Narcissus* will now be in beauty for a considerable time. Mr. Barr sends us some of his double Daffodils, the English, French, and Italian. The latter are the largest and the English the smallest. All are handsome, and should be in every garden.

** * These notes will be devoted during the present year to flowers sent us from various parts of the country. The editor would welcome examples of rare, well grown, or interesting flowers of the open air from those who grow collections of these plants. Notes of them, and a frequent record of the flowers of the year as they succeed each other, are helpful to beginners and often valuable to others. Apart from the great variety of as yet little-known, but lovely plants which may come under notice in this way, are the lessons one may learn as regards their development on various soils, and in the very widely differing districts and climates of the United Kingdom.*

NOTES FROM CORNWALL.

Calla Lilies.—Allow me to inform "M. E. G." (p. 320) that Callas make good aquatics, provided they are not planted very deep, and among other plants that might be grown in the same tub, few are so lovely as our native queen of aquatics—the white Water Lily. The best material with which to cover the sides of the tub is Virgin Cork; and if it is wished to grow a few plants in the cork, it can be done by nailing the lower ends of the pieces of cork only, when the top pieces will jut out and form a semi-round crevice, in which can be grown Forget-me-nots, Mignonette, and many others, according to the taste of the owner; but in all cases the cork selected should be thin, and placed rustic fashion, not too stiffly. Should the cork seem too dull, a little varnish will make it bright.

Veronicas.—In reply to "W. J. M.," I may say that Veronicas (garden varieties) have suffered a little, but not fatally; the leaves are all withered and the racemes of flower are quite scorched. They will, however, I think, soon push forward when the weather becomes more genial.

Wallflowers are just now in their prime, and more beautiful spring flowers one can hardly imagine; their shades are very numerous; their perfume delicious; and their colours not gaudy, but rich. In Scilly, Wallflowers are said to be all killed, a fact not before experienced in the memory of man. Here they are not in the least hurt.

Vines Out-of-doors.—The growing and fruiting of Vines out-of-doors in Cornwall has often been tried, but, as far as I know, quite unsuccessfully. Mr. P. Grieve (p. 356) says the Black Ham-

burgh has been tried and found to succeed. Might I ask, Where? and under what conditions? As far as mere growth is concerned that is an easy matter, and a better climber for arches, doorways, &c., than the Vine can scarcely be found; but its berries never get larger than Sloes, and seldom so well flavoured.

Olearia stellata.—This has been in flower for several weeks out-of-doors at Park Clies, Gulval; its flowers are star-like and very pretty. It closely resembles the *Eurybia ramulosa* figured in THE GARDEN of January 15.

The Export Out-flower Trade in Scilly is assuming considerable dimensions; nearly eighty boxes of *Narcissi*, &c., came over on March 25, and the area under flower cultivation is increasing. I hear that early Potatoes in Scilly were very much cut by the winds experienced during these last few days.

W. ROBERTS.

ANEMONE CORONARIA, ALPINE AURICULAS, AND POLYANTHUSES.

As these are among the most beautiful out-door hardy plants at present in bloom in my limited collection, permit me to say a word or two in commendation of them as early spring flowers, adding a few cultural remarks.

Anemone coronaria.—With a good strain, in which the blooms are rarely under 2 in. diameter, and by carefully hybridising and selecting one's own seed—only taking it from the most brilliant scarlet, deep blue, striped and shaded, preferring semi-double flowers, when they can be obtained, for the purpose, and sowing at intervals, so as to have seedlings coming on to replace plants that prove worthless or older tubers that show signs of degenerating, I find I can have those beautiful flowers from January to December. The same is even more correct of many gardens with which I am acquainted. As they are gross feeders, though I know it is objected to, I give them occasional doses of liquid manure from this month forward, and an occasional top-dressing also. It is a bad arrangement to scatter the seed on a border and leave them to flower there and exhaust each other, or rather the feeding medium. Invariably transplant at regular distances apart. Seed may be sown now for succession—a fortnight will be gained in doing so by rubbing it between the hands with fine sand—sowing in a moist sandy medium, and shaded. Scarlet and crimson blooms, 3 in. in diameter, during the past fortnight could be discerned a mile away. For brilliancy, few spring flowers can compare with these Anemones.

Alpine Auriculas.—The first to open, ten days since, was the old yellow with white eye. It is very showy, and contrasts with Tulips or any other flower of any other colour. The next, a few days since, was the self-brown, a few shaded; and now the self-black, with a white eye—a very effective contrast. They were never healthier and stronger with me, especially a large number of my own seedlings, which I take much interest in raising and hybridising. I know of few flowers so deliciously sweet-scented. I lost none during the winter, except a few green-edged. Cold will do these no harm; they will grow with almost any treatment and in any soil; then who should be without them? The better kinds I grow on open, specially made stands.

Polyanthuses.—The first blooms I had from gold-laced seedlings in January—noted in THE GARDEN. After an interregnum the rather rare yellow came, then the little Hose-in-Hose, and within the last fortnight numerous kinds, many of no real merit, have expanded. Like most others, I find it difficult to raise real good gold-laced kinds from seed, no matter how carefully hybridised. Those shaded slightly and partially moist do best with me. There is, however, no reason why these easily grown and really fine spring flowers should not be in the smallest as well as the largest collections.

W. J. M.

Clonmel.

Diseased Apple Trees.—I have sent you a piece of Apple wood, and I should be greatly obliged if you would examine it and give me advice on the subject. I have about twenty young trees which have only been planted about five or six years; they are all affected little or much, some of them having lost whole branches; the subsoil is green sand, and the trees seem to have been planted rather deep.—W. B., *Blandford*. [Your Apple trees are afflicted with a bad form of canker, and as the bark is gone and the wood exposed in the specimen sent to us, the branches must of necessity die, as you say is actually the case. The bark is decomposed round the canker spots, and since last year the bark has been attacked by two fungi—one a *Nectria*, the other a *Fusicladium*. Without knowing every condition of growth, it is impossible to give an opinion either as to cause or cure. Canker occurs in the best kept gardens and with

the most skilful gardeners; it generally baffles explanation or cure. Horticulturists and botanists have insufficient knowledge of the nature of diseases of this class. The fungi are an undesirable after result.—F.]

AMERICAN BLIGHT.

A LATE writer in THE GARDEN expresses the opinion "that all Apple trees affected with this blight should be destroyed." Now this seems to me to be rather a hasty conclusion, as it would involve the loss of very likely one-third of all the Apple trees in Britain. Great numbers of our old orchard trees are of great age, and present such a labyrinth of boughs, and such rough uneven bark, that they are practically beyond the appliance of insecticides; but I can testify to their bearing qualities, as I have three very old trees that never fail to produce a crop, and this year the show of buds is perfectly wonderful for such old subjects. I do not desire this latter argument to mean they would not be better if no blight existed; but of one thing I am certain, that to these trees it amounts to very little inconvenience. With younger subjects the case is different, and repeated applications of insecticides will eventually entirely eradicate blight, for I also have young trees which, though close to the old ones, I have entirely cured by repeated applications. I also remember very distinctly both my grandfather and father being busy painting some trees in the garden of our old home nearly fifty years since; three years ago I had the satisfaction of visiting that garden and observing that the trees, though venerable looking, were in perfect health, and were then well furnished with fruit.

There is another part of this subject worthy of attention—that is, it is not all kinds of Apple trees that take the infection. In the same garden there are two trees that never had a sign of this blight; one is the Peach Apple, and the other Norfolk Beefing. I do not remember the names of the formerly blighted kinds with the exception of one called the Nutmeg Pippin, a very small Apple, reminding one of a Nutmeg in appearance; it is highly prized for its flavour and keeping qualities. I have also a large tree that enjoys immunity from this miserable plague, although not 30 yds. from those blighted. It is the Margil, and in a cider orchard close to my house I observe trees both clear of the disease and blighted in close proximity. I am therefore inclined to think that it would be well to observe this matter more closely, and not to condemn where there remains any doubt as to facts. It is well worth while to ascertain at any rate what trees are least subject to blight, so that selections of such kinds may be at the option of the planter. If such were tabulated it would be of great value to the public; at the same time it would be difficult, as in large cider orchards there are endless Apple trees without any name. It is only the most popular kinds—and these are the most subject to blight—that are named and are recognisable.

W. T.

PROPAGATING.

Chimonanthus fragrans.—This shrub cannot be increased by means of cuttings, but, as is the case with various other plants having large prominent buds and hard leaves, it may be propagated by employing the eyes of one or two-year-old wood. These should be cut with about $\frac{1}{2}$ in. of wood beyond and below the bud, shaving away carefully the wood opposite the bud till the pith is quite removed. Thus prepared, insert the buds in shallow pots or pans of sandy loam, placing the eyes horizontally and level with the surface. The soil must be kept moderately, but continuously, moist. The shady part of a cool pit or greenhouse will suit them till spring, when, if then callused, they may be placed on a slight bottom heat to finish the rooting process. Pot them off when fit for moving, and gradually harden them off preparatory to planting them in the reserve garden. This plant is easily increased by layers, which take usually two years before they are sufficiently rooted to be severed from the stool.—SYLVESTRIS.

Increasing Poinsettias.—*Amateur.*—In the first place allow the plant to become quite dry, then cut it down to within 4 in. of the pot, and keep it in a warm place, only watering when absolutely necessary. The result will be that several shoots will spring from it. These should then be cut off and put in small pots one-third full of crocks and then filled with a mixture of peat, loam, and sand, with a little sand on the top; put them in a close warm place under a hand-light or bell-glass, which must be removed for an hour each morning, care being taken that they are on no account allowed to flag, and to prevent this they must be shaded and watered when necessary. In this way they will soon root, and must then be potted off and treated as older plants. The portion of old stem removed may be cut into pieces, leaving an eye to each piece. These may be inserted and treated as the other cuttings, but plants from young shoots are to be preferred.—H. P.

Artocarpus Cannoni (p. 296).—The best way of propagating this is to take cuttings of the half-ripened wood, cut them at a joint, and leave the bottom leaves entire, then insert them singly in well drained small pots filled with a mixture of sandy peat and loam with a little sand on the top. This done, place them under a hand light in the stove, and be careful to remove the light every morning for a little while to allow the condensed moisture to get dried up, and also shade when necessary. If they can be plunged in a little bottom heat when callused rooting will be hastened, but if plunged as soon as put in they are liable to damp off.—H. P.

LATE NOTES AND QUESTIONS.

Espallers.—I am going to put up an espalier fence in my kitchen garden, altogether about 700 ft. long. Would there be any objection to my putting up a bar fence instead of strained wire? the latter is always getting out of order. What height should it be?—**DEODAR.** [The bar fence will be better than strained wire for the purpose named, although of course more expensive. The bars should be round, not angular or flat; 5 ft. will be a suitable height.—E. H.]

Frosted Vines.—On the 23rd ult. the glass was maliciously broken in one of the Vineries under my charge. The Vines, which were just showing fruit were tied down to the front of the house, and the glass was broken immediately over them. There was a slight frost and a hard piercing wind during the night, and the tops of the shoots were all killed in the morning. It is my opinion that the Vines are permanently injured (which by-the-by are but three years planted), and that it would be well to replace them. Will some of your correspondents kindly give me their opinions on the matter?—**CONSTANT READER.**

H. A. A.—We cannot help you in designs for rustic work. See the catalogues of dealers; but village carpenter work in that way would probably be best. As to the forms of the beds on your lawn, we should advise you not to use any "pretty patterns" at all, but a few large circles or ovals. You should rather think of what is to go in the beds than of their shape. We would strongly advise you also to avoid all patterns having small, complicated, narrow, and pointed beds, as a source of trouble, and never pretty, except, perhaps, to those who design them on paper.

Tornelia fragrans.—How can I tell when the fruit on the *Tornelia* (*Monstera*) fragrans is ripe? There is an interesting notice of the plant in THE GARDEN for the 6th of November last, but it omits to state the appearance of the fruit when it is to gather.—**N. G.** [It should be yellow, like a ripe cob of Indian Corn or a Pine-apple, the flavour of which it somewhat resembles.]

Stakes for Lilies.—I have had a number of stakes made for a bed of a valuable kind of Liliun. The points have been tarred about 12 in. up. Is the tar likely to be injurious to the roots of the Lilies?—**LILY GROWER.**

Anchusa angustifolia.—If sown now, will this bloom this year? and also how is it propagated?—**B. M.** [It is propagated by seeds, which, if sown now will bloom next year; not before.]

Bridal Wreath.—The plant commonly known as the Bridal Wreath, referred to by "H. A. M." (p. 320), is the white-flowered Francoa (*Francoa ramosa*).—**W. H.**

Watercress.—I am anxious to grow Watercress; will anyone give me directions? We have a moat round our house.—**SUBSCRIBER.**

Cinerarias.—**W. N. W.**—Your flowers are somewhat coarse and irregular, large size being their chief merit.

Woodlice.—I have seen it stated that gas-lime will expel woodlice from their haunts, and two boards or tiles kept $\frac{1}{2}$ in. apart form an excellent trap.—**TINY.**

Cyclamens.—**G. J. Cloke.**—The specimens are, indeed, very fine, being unusually large and finely coloured.

J. L. S.—Apply to the secretary of the Royal Horticultural Society, South Kensington.

Cucumbers.—**F. S.**—As a rule one hillock is put under each light.

Names of Plants.—*Fuchsia microphylla*, *Doronicum caucasicum*.—**F.**—*Acacia longifolia* (an Australian plant requiring greenhouse protection).—**Miss Owen.**—The *Draba* cannot be correctly named unless it is examined in fruit. —**F. W. S.**—*Sparmannia africana*.—**Anon.**—*Acacia Farnesiana*.—**T. Balding.**—*Alonsoa incisa*.—**President.**—We cannot name flowers from description only. The leaf you send belongs probably to a species of *Brassavola*. The other flowers next week.—**A. B. C.**—*Celsia cretica*.

The Flower Mission.—Now that flowers are becoming more plentiful than they have been during the winter, allow me to say a few words in reference to this mission, by means of which over seventy houses of sick people, chiefly paupers, are almost continuously supplied with flowers. To say nothing of the cards attached to the bouquets, each bearing some appropriate and gentle portion of scripture, the bags of lavender which take the place of flowers whilst the latter are deriving new vigour from their winter sleep, how tender and loving a thought is it to send a few flowers to each of many thousands of suffering fellow men and women, who find more consolation, I warrant, in the simple lesson of an unassuming bunch of flowers than in hours of clerical denunciation or sympathy. Forgive me if I speak strongly on this subject to my fellow-gardeners, and show them how much they can do with the bunches of *Pelargoniums*, *Calceolarias*, and other bedding plants which are cut off by the thousand in a perfect state when the blooming season is on the wane. "The smallest contributions thankfully received" is the motto of the flower mission in Cannon Street. In 1879 and 1880, 289,593 of these little messengers of peace left the headquarters of unrequited love, not to mention 11,678 bags of lavender, 25,399 cards of texts, and 3809 little presents—a total of 330,479. The most suitable flowers for the mission are *Anemones*, *Asters*,

Antirrhinums, *Carnations*, *Chrysanthemums*, *Candytufts*, *Calceolarias*, *Coreopsis*, *Double Daisies*, *Bouquet Dahlias*, *Everlastings*, *Heliotropes*, *Lavender*, *Verbenas*, *Mignonette*, *Marigolds*, *Michaelmas Daisies*, *Polyanthuses*, *Pansies*, *Phloxes*, *Pinks*, *Roses*, *Sweet Williams*, *Sweet Peas*, *Violets*, and *Wallflowers*. All hampers are returned to the senders: They should be directed to Mrs. Turton, 110, Cannon Street, London, E.C., to whom all communications may be sent.—**GIROFLE.**

The Frost in January.—I never recorded so much frost in one month as I did in January last. Common Laurels are cut terribly, perhaps owing to their growing so very late, and Portugal Laurels are losing very many of their leaves; other shrubs are not hurt so much. Roses are sadly cut; indeed, a good many standards and half standards I am afraid are killed. I think it would be well to do away with standards altogether, for to my mind they are not nearly so handsome as dwarfs.—**E. SENDALL**, *Birmingham, Hanworth, Norfolk.*

DR. ROBERT HOGG.

MR. A. F. BARRON writes to me that it is "not quite true" that THE GARDEN was excluded from the Chiswick rooms, as mentioned last week. I had good evidence that it was true, or I should not have made the statement. The point is not worth discussing further, and was not worth naming, except as showing the animus with which some editors have regarded this journal.

Dr. Hogg writes in his last issue as if he were the sage defender of "propriety, good feeling, and good taste in journalism"! the fact being that he was the aggressor in one of the most offensive and, as regards this journal, uncalled for paragraphs that could be written. Then followed a categorical denial of its meaning and import in court, and now comes the pose of an injured innocent! **Dr. Hogg** then approaches the matter from a judicial point of view, giving a quotation, showing that one journal should not resort to legal proceedings against another, declaring the latter to be a "pitiful source of weakness." It is to be regretted he did not remember this excellent precept when, some years ago, he put the machinery of the Court of Chancery in action against me without giving notice.—It happened once that I, wishing to publish a Report of the Royal Horticultural Society on a Pea trial at Chiswick, commenced to do so from what I supposed to be a copy of the Society's Report, published in *Dr. Hogg's "Year Book."* Such societies exist for the spread of information. I was a Fellow of the Society, and as a journalist could assist in the diffusion of this knowledge. I had, in fact, the right and reason to publish the Report. I afterwards wrote to the assistant-secretary of the society, asking him if any of its officers had any special right to the article in question, and whether I was justified in publishing it. **Mr. Richards**, who held that office at the time, replied that no officer of the Society had any property in the article, and that I had the fullest right to use it. The article was the result of trials at Chiswick; the data for it was gathered by **Mr. Barron**, and edited by **Dr. Robert Hogg.** He, in using this report in his "Year Book," made some slight changes, which technically appeared to give him rights over it. Seeing that THE GARDEN had commenced to print the version of the "Year Book," he immediately put the machinery of the Court of Chancery in action against me without giving notice of any kind. This, though very unusual, it appears, is allowable, but respectable houses do not think well of it—I think it, in fact, sharp practice. If a man is building a wall in front of your windows which may exclude your light, and he has no right to so interfere, it is customary to give him notice, and request him to cease his operations, before instituting the costly and vexatious proceedings of an injunction in the Court of Chancery. However, what is known as shabby to respectable lawyers seems the right thing to do in the case of our L.L.D.'s and F.R.H.S.'s. Of course I did what the simplest request would have effected, had it been made—I withdrew the article. I then turned to the Society's Proceedings, and reprinted the article from them unmolested, and so the affair ended. To judge of the nature of this business, it is necessary to bear in mind that **Dr. Robert Hogg** was at the time an official of the Royal Horticultural Society, and that as such it was his duty to prepare the Pea report in question for the Society.

With reference to certain adjectives and polite personal allusions of **Dr. Hogg**, I will not notice them further now, merely stating that it is not my habit to "criticise my contemporaries," that in every case in which I have had to deal with them I have been attacked. It is not my fault if they do not like the defence; some like to do the hitting only, and cry out if they get a

home thrust in return, saying they did not mean to offend. Of the rest the public, and not our friends or rivals, will be the best judges.
W. R.

MR. HIBBERD AND IMPROVED "PRUNING AND TRAINING."

MR. HIBBERD makes the following allusion to my small volume on "Pruning and Training": "In a book on pruning, written by John Simpson, and published at THE GARDEN office, Mr. Shirley Hibberd's proposals, that have been much debated, are virtually adopted and illustrated as purely original. At page 68 of the book occurs a neat example of the author's method. A foot note records that 'Mr. J. E. Saunders has published in the *Florist* a portrait of,' &c., &c., the reference being to a figure of a Pear tree which really appeared in the *Gardener's Magazine* of June 10, 1880. Mr. Moore, the editor of the *Florist*, borrowed the block and copied the description, and acknowledged his indebtedness in the usual way." I am pleased to have the opportunity which this presents of doing Mr. Hibberd justice, and placing him and myself in our proper relationship to each other on the subject of training fruit trees, and then I shall leave the public to judge which of us it is who has appropriated the other's ideas. In 1876, Mr. Hibberd, for the first time, so far as I am aware, published his ideas on what he called the natural system of fruit-tree culture, the only original feature of which consisted in tying stones to the branches to make them fruitful. I have not heard of any other visible example of Mr. Hibberd's training except this, and when he delivered his lecture on the subject at the Society of Arts I presume he brought the tree under his arm and the stones in his pockets. Ten years previous to Mr. Hibberd's revelation I had been at work on the extension system, and for five or six years before I had written about it and continued to write. In 1866 I planted my first house of Peaches, extension trained, and have them still to show in fine condition, and in 1870 I described them in the *Gardener*, giving their size and fertility, &c. In 1867 I began with the Vine, and in 1870 I furnished a Vinery on the same principle, and described it in THE GARDEN and in my book. Up till 1869 I had not quite lost faith in restrictive trained dwarf Apples and Pears, and had tried my best to make these succeed under my charge, but my experience with stone fruits and the Vine had led me to doubt their utility; and just about twelve years ago now I wrote in the *Gardener* respecting dwarf trees and stocks that gardening on the "Doucein and Quince principle was all very well, but, however well adapted to meet special ends, it lacked the elements of durability, and should not be pushed beyond its special province. We have a partiality for the old orchard—the feature of many a homestead and chief source of supply in many an establishment." The climate I had to deal with here forbade me attempting the extension system out-of-doors with much prospect of success, owing to the difficulty in ripening the wood, but soon after writing the above, in 1870 or 1871, I determined to subject all our formally-trained trees, a large number, to a less restrictive system of pruning and training, and one of my first acts then was to saw the branches off a number of pendulous pyramids and convert them into natural pyramids freely grown, and the trees still bear witness of the treatment which they received, and some of them are almost fac-similes of the portrait in the *Florist*, only much larger. About the same period I did away with a long avenue of Apples and Pears trained balloon-shaped, cutting the branches off at the base and turning the trees into natural standards, such as I reserved at least, and from these trees some of the shoots came that illustrated the extension principle in my book, and these trees are to be seen now with shoots upon them that have been allowed to grow purposely years before Mr. Hibberd uttered a word on the subject. In this matter of "extension *versus* restriction" he must, in short, be content to subside into the position assigned to him by those who know all the ins and outs of the subject.

My old foremen, men like Mr. Burnet, of the Deepdene, Mr. Wilson, of Castle Hill, Devon, and others, all successful fruit growers, know me and my doings, and can testify thereto. I have never yet accused Mr. Hibberd of borrowing the more sensible and practical ideas of his discourse at the Society of Arts from my writings and practice penned previous to his discourse, but when he talked in his lecture about "a great healthy Peach tree," and compared it to a tree "kept within bounds" by the knife, I felt much inclined to ask him who first described the great healthy Peach tree in the *Gardener* and *Field*. It was I. And, again, when he exemplified the "forest Oak" as a tree that had never been touched by the knife to illustrate his naturally grown fruit tree, was the comparison his? No. Five years before in the *Gardener* I had, in defending extension, pointed to the unpruned Oaks of Sherwood Forest, and asked "how far restriction had promoted their long life and vigour," &c. Even his suggestion to allow

the breast-wood of wall trees to grow out from the wall like a "fringe" was not original, for the self-same thing had been proposed for exactly the same reasons, and in wonderfully similar language, by the "Squire's Gardener" in an article on the "Fates of Fruit Trees" in the *Gardener* of 1871 (p. 19), and in an article of mine in the same journal in January, 1872. I acquiesced in the "Squire's Gardener's" view, and there wrote, "If we want to get the full benefit of the Quince or Paradise stock, for example, we must let the trees carry as much wood and foliage as can be well exposed to the light; in short, allow full scope to the energies of the tree. Within the last two years we have planted nearly 200 Apples and Pears on the Paradise and Quince stocks, and we intend to allow them to develop themselves to their fullest extent;" and again in the same chapter occurs the following concluding passage:—

"With regard to trees on the natural stock, there is no doubt that those which are allowed to grow most and are pruned least save thinning, bear soonest, and most abundantly. We know from everyday experience that if we cut back a strong shoot, the result will be several other shoots quite as strong without fruit-buds; but if we leave the shoot entire, we will have a less robust growth, and a shoot furnished with natural fruit-buds its whole length. We have seen the effects of such treatment often, and could point to trees now which the knife has hardly ever touched for ten years, and upon which the young Apples hang, when the trees bear, like strings of Onions on the long pendulous branches."

These are the words I have written in my book, and they are also the words I wrote some four years before Mr. Hibberd announced his discovery at the Society of Arts. It is just possible that Mr. Hibberd may have begun later to work in the same direction as I had been working for years, and it is also just possible he may never have read a word which I, or anybody else, wrote on the subject; but had such remarkably parallel expressions of opinion as those contained in his discourse, and uttered under such peculiar circumstances, occurred in any other walk of literature, hardly any defence that the author of them could have offered would have been accepted as exonerating him from the charge of plagiarism. And, worst of all, those very proposals, so anticipatory of all that Mr. Hibberd had to tell his audience (always excepting the boulders), came from "those gardeners who," according to the lecturer, "are too thick-headed" to understand the subject, but of whose suggestions Mr. Hibberd himself was only the echo. Was it, I ask, at all probable that the editor of a gardening paper could be ignorant of what had from time to time been written on a subject in which he professed to be interested? And is there any one who knows what is transpiring in the horticultural press who doubts that Mr. Hibberd has been an attentive reader of all the papers in which these matters appeared? I should think not; and I now leave the reader to judge if Mr. Hibberd possessed the vestige of a claim to be mentioned in my book on "Pruning and Training Improved," or acknowledged in any way whatever.

As to my note from the *Florist*, I certainly thought I was making all the acknowledgment needful when I named the paper in which I saw it; but if I violated the rule in that respect, I am sorry for it and apologise. It was a matter of no importance to me one way or the other.

J. SIMPSON.

Wortley Hall Gardens, Sheffield.

Effects of the Winter in Ireland.—Up to the present time but little has been done in the way of summer cropping outside, as this season, being one of unusual severity, has rendered it impossible to make much progress, except in well-drained gardens and where the soil is of a light character. I find that in some parts of Ireland quantities of Potatoes have been destroyed that were planted before the frost set in. It has been a usual thing to plant Potatoes out in a good dry situation the first or second week in January, but the last three seasons have been so very severe that this early planting has been a loss to some of our market gardeners. Vines and Peaches are a little later this season than usual. In some places early Peaches are a complete failure, but many ruin them by giving them too much heat and too little air, Peaches greatly disliking confinement, which often causes them to shed the greater part of their fruit either at setting time or when stoning. My Vines and Peaches are doing very well, seeing it was such a dull season at setting time. I have two plants of New Zealand Flax which I fear are nearly destroyed by the winter; one of them was the finest plant of the kind to be found in Ireland, or perhaps in England.—A LOVER OF NATURE.

MR. W. S. CAMPBELL, gardener to Wm. Garnett, Esq., Lucan House, Ripon, is appointed gardener to R. S. Donkin, Esq., Camp Ville, North Shields.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

SPRING NOTES FROM CHESHIRE.

COME what may, the first instalment of spring flowers has at any rate been better than ever; the herbaceous plants and the bulbs seem quite to have forgiven and forgotten the severe frost; indeed, one might suppose from their appearance they had never known anything about it till they came up and saw the dead and browned Laurels all round them. Hepaticas give more promise of success than ever before in this garden; by carefully imitating the conditions under which I have seen them doing well in other gardens, I have got them into better ways. Some of the strongest keep a fair crop of leaves through the winter, and these of course flower best. I give them all a top-dressing of fine rich soil at the beginning of winter, and since I have done this a crop of seedlings comes up in the middle of most of the single varieties. Hepaticas generally ripen seed, but it will not keep well, and as it sheds early on the bare crown of the plant is generally lost. The seedlings, like those of the Winter Aconite, first appear at the end of winter, when the flower-buds are rising. Hepaticas require protection against slugs, which eat out the flower-buds. I find a magic circle of soot and coal-ashes very effective, taking care not to fence in any of the enemy. It is not too early to speak of Primroses; the coloured single varieties raised from W. Thompson's mixed garden Primrose seed have never been quite without flowers since October, and are now in full beauty, especially the pure white. I find it better to raise them continually from seed, and about the third year to plant them out in the woods, where, I am sorry to say, they generally disappear, or as some people would state, turn yellow. Most Primroses do best treated as biennial or triennial; after the third year they get their heads too crowded, and never do well after division. What a trouble it is to keep up a stock of double Primroses or choice Polyanthus! I have seen complaints about *P. denticulata*, but on my rockeries it is most satisfactory this spring; one plant has already twelve fine umbels in flower, and at least as many more in bud. I have many plants, and nearly all are doing well. *P. rosea* seems quite indifferent to soil and situation; seedlings from seed gathered last May are in flower here by the hundred in all aspects and positions. Care must be taken to catch the seed before it sheds, as it forms on the outer surface of the receptacle, and drops off as soon as ripe. If sown at once under glass, like most Primrose seed, it comes up in a week and gives no trouble in rearing. Twenty other kinds of Primroses promise well. *Erica carnea* in peat beds is unusually fine, but the white variety has a delicate constitution, and never survives the winter here. Dog's-tooth Violets like this strong soil if planted deep and in a pocket of sand, and multiply wonderfully, but the American species do no good. The white variety is a fortnight later than the purple, and is now just out. *Iris reticulata* in the open border came into flower the first week in March, the flowers lasting three weeks, and never flinching with the snow-storms and frosts they went through. *Iris stylosa*, of which I had some beautiful flowers about the same time from a friend in Devonshire, lives, but does not flower in my garden. *Gentiana verna* began to flower in November, and has exhibited one or two flowers, when not covered with snow, all through the severe weather, as much as to say, "This is nothing to what we

have at home." Each flower is wonderfully persistent. All my plants of it are marked with a large label, inscribed "water me," that it may not be forgotten through spring and summer; water is necessary to its existence, but it wants no other care. The plants are now full of buds.

The Spring Snowflake and Canadian Bloodflower (*Sanguinaria*), though they flower annually in my garden, do not increase; I cannot tell why. Several patches of the bright scarlet Windflower, known as *Anemone stellata fulgens*, are now a blaze of beauty. Once in two or three summers a friend from Bayonne brings me some roots collected in the Vineyards at the base of the Pyrenees. Three or four tubers, looking like bits of dry stick, produce in the following March a dozen or more great flowers of dazzling scarlet. After the first year, though they live, they never flower well. My friend suggests that they miss the annual ploughing up which they get in their native Vineyards, but it is more likely that they miss their natural conditions of sunlight and heat while they are collecting their strength into their tubers for the next year's flowering. *Chionodoxa Luciliae*, for which I am indebted to Mr. Maw, flowered worst in the greenhouse, and best on an open border in good loam, with 3 ft. of limestone blocks beneath it. A friend lately asked me, Who was *Lucilia*? I replied, that he or she is not in my classical dictionary, and I am as curious to know as he is. The Golden Valerian (*V. Phu aurea*), though not a flower, deserves to be mentioned amongst spring flowers, for it is now as bright as any flower in the garden. Its leaves turn to gold just at the time the Grass turns green—this year about the middle of March—and continues at its best for about a month. It must have an open situation in a good, rich soil, and be established in its spring quarters by November; it will then disappoint no one who tries it.

The plants I have named, with many others which I could name, are the beginning of a series which will fill my garden with flowers till the end of autumn, so that for the ten months from February to November no part of it will be flowerless. All of them are easily grown, and what will grow here will grow anywhere. These notes belong to "Gardening for the Many," and are the only notes I am able to send; but far be it from me to disparage grander and more costly gardening. What is gained by disputing about the comparative attractions of a hardy *Narcissus* and a stove-grown *Amaryllis*? A fine *Cattleya* or *Vanda* is a beautiful thing which cannot be imitated in the open border, but of that sort of gardening I say, *Non cuius homini contingit*. It is better not to long for a red mullet, says the Roman satirist, when you have only enough money in your purse to pay for a gudgeon. Still, these gudgeons amongst plants are rising so fast in favour, even amongst those who can afford to pay for mullets, that the market can hardly supply the demand for them. It is the cultivation of hardy plants that the editor of THE GARDEN has especially and successfully laboured to encourage, and I for one rejoice at his success, because I feel sure that the more converts he makes, the more there will be who are laying up for themselves a store of quiet enjoyment and amusement for times of infirm health and old age. Amongst many instances of this present to my mind, I may mention one case of a friend who is quite disabled by long illness from following ordinary occupations and amusements but who finds in his flowers a never-failing resource. He lives at a pretty watering-place in the north of England, and his little villa has about 10 yds. square of ground in front of it, and about twice as much in the rear. This garden he has made quite a museum of hardy plants, and in it he may always be seen in fine weather, like the amiable founder of a school of Greek philosophers—*exigui latus*

plantaribus horti—as busy amongst his flowers as his strength will allow him to be, rejoicing to show them and talk about them, or calling in children on their way home from school to give them a root of double Daisy or coloured Primrose to encourage in them, too, a taste for gardening. One word in conclusion to those who profess themselves converted to this kind of gardening, but think that it will cost them no trouble. You must not suppose that the cultivation of hardy plants consists in taking a basket to the garden of your friend, and, having filled it with flower-roots of your own selection, taking it home, putting them in holes in the ground anywhere, and thinking no more about them. In this case the greater part of them will soon have disappeared, and you will wonder why or how. The planting of hardy flowers must be followed by attention, differing according to their kind, which a little experience will teach you how to pay. This attention they will abundantly requite, and will always greet you alike with a cheerful look whether you are in joy or in sorrow, and never desert you or behave towards you with ingratitude.

Edge Hall, Malpas.

C. WOLLEY DOD.

LILY CULTURE.

WHEN Mr. Burbidge asked in these pages some months ago if anyone possessed a clump of *Lilium auratum*, the *bona fide* and unmoved produce of one bulb planted five years ago, he was, of course, fully aware that in all probability there were many such existing in our gardens. I presume both Mr. Wilson and Mr. McIntosh could show such clumps at Weybridge, and perhaps even Dr. Wallace may have such a one in his Colchester garden; but no British grower has as yet answered the question. Mr. Jack, who writes from Halifax (Nova Scotia), tells us that "occasionally the thermometer goes down there to 17° below zero, frequently to 10° below, and that zero (32° of frost) is common, a fact which shows that this Lily is quite hardy." This evidence shows that *Lilium auratum*, under certain conditions, is not readily killed by frost when "at rest" during the winter months in Nova Scotia. I add the habitat advisedly, because all power of resisting cold in a plant—as in a man—depends on several conditions, and I have repeatedly noticed that after an "Indian summer" in England, Lilies generally winter better than after a wet and sunless one, and I have no doubt the same hot sunshine which paints the big Apples and Pears of Nova Scotia so beautifully, also "plumps up" and hardens the tissues of Lily bulbs, so that they are proportionably able to resist a winter—arctic in its severity—with but a slight protection. But let me ask English—that is to say British—cultivators to tell us of their five-year-old clumps of *Lilium auratum*, the produce of a single imported bulb. I see to-day that *Lilium auratum* is pushing up its great red Asparagus-like growth through the leaf mould surfacing of our sunny borders, and so the soot bag has been sent round, and a cordon of carbon now fortifies them against the attacks of predatory-minded slugs. Bulbs planted at the same time in the shade of Rhododendron bushes are still below ground. *L. longiflorum* began to pierce the soil in February, and now there is a general rush of many kinds, including *L. giganteum*, *L. testaceum*, *L. tigrinum* in variety, *L. chalcedonicum*, *L. speciosum*, *L. Krameri*, *L. croceum*, and that gem of all the Turn-cap Lilies, *L. Szovitzianum*. All alike are surfaced and surrounded with soot, which we find a never failing panacea against slug bites, and as the April showers wash it down to the roots below, we see ample evidence of its power as a manure.

Our Lilies in pots two years planted are most promising. They were potted early in October, and have been wintered in a cold frame. The pots, each containing from three to ten bulbs, were plunged in a bed of coal ashes, and a layer of ashes 1 in. thick was spread over the pot tops. The pots were nearly 3 ft. from the glass. No water was given after repotting, as we find the earth becomes quite moist enough when covered with ashes as here described. During mild weather all through the winter the lights were thrown back night and day, but in case of frost and rain they were replaced; now that the growths are peeping above the soil the lights are thrown back night and day, otherwise the stems become drawn and the bloom weakened. Such is our simple plan with Lilies in pots.

Seedling Lilies.—A Lily-growing friend who, like myself and Mr. Burbidge, is a firm believer in home-grown Lily bulbs from home-grown seed, wishes me to ask for information on this point from those growers who are in a position and have the leisure and inclination to favour us with their ideas on the subject. A little

over a year ago he sent to me a batch of seedling—possibly, hybrid *Lilium auratum*—speciosum bulbs the size of Walnuts, and remarkably plump and weighty for their size. They were carefully planted, and I await their flowering wholly, or in part, this summer with much interest. I think there can be no doubt that we are far too fond of vegetative modes of propagation in the case of all hardy plants, and I know I am not alone in hoping for the time when seminal reproduction shall be deemed infinitely preferable in many ways.

Lilies in Sunshine and Shade.—This year, for the first time, I have tried planting *Lilium auratum* in the angles of sunny walls, in a position where we can clear them from red spider or green fly with spray from a hose pipe, and in such a warm sunny corner the bulbs must perforce become well ripened before winter. So far my experience goes to prove that a sunny position suits *L. auratum* better than a shady one, but then I must perforce plant in a naturally moist, deep, alluvial soil, and our summer sunshine is not so intense as it usually is in the drier English climate. Here at any rate the dry positions are most favourable to *Lilium auratum* provided some dwarf carpeting of annuals or other low-growing plants be used to protect the base of the stems and the soil from sun and drought. It is only by carefully studying the wants of a single species, as *Lilium auratum*, for example, that one can obtain a fair share of success in its culture, and in some cases, Orchids, for example, even individuals of a species, require especial treatment in some particulars. I find that *Lilium giganteum*, for example, is very apt to "go off" here through drought and heat during the summer rather than from any amount of cold and moisture during winter. I should say that it is decidedly a Lily for a cool and shady locality, just as *Lobelia* of the *L. cardinalis* section may be submerged for weeks during the winter months in a bog, and remain fresh and healthy while a dry and warm border during the winter months is almost certain death to them. The same is true of the North American Lilies of the *L. superbum* section, which succeed perfectly on the spongy margin of a wet peat bog, and break away far stronger in the spring than when wintered high and dry on ordinary borders. There is no doubt that many failures in Lily growing have resulted from the "serve 'em all alike" kind of treatment, and it is equally true that the old notion of drying off many bulbs and other plants which are naturally natives of bogs and marshy meadows throughout the world, is also wrong in practice as well as in principle. When the fact that a lowering of temperature and less sunlight is Nature's plan of inducing rest (in cold and many parts of temperate climes) rather than drought or absence of moisture becomes fully recognised by cultivators of hardy flowers, it will be a great point gained.

A. L.

THE BALSAM AS A BORDER PLANT.

WITH very few exceptions, those who grow Balsams grow them in pots under glass where they invariably get drawn out of all propriety as to shape and uniformity, and in very many instances give a very poor return for the trouble and care bestowed on them. No doubt all pot plants are a source of trouble and labour, and certainly Balsams are no less troublesome than any other class, yet if they are wanted for special decorative purposes, or for exhibition, they must be grown in pots. There are very many kinds of plants that can be only grown in pots and under glass, but then the Balsam is not one of these, as it is quite possible to have this fine summer flower in the greatest perfection growing in the open ground, where its period of blooming is prolonged to an extent totally unknown when kept under glass.

To many persons the greatest possible recommendation that a flowering plant can possess is that its flowers can be used in a cut state for bouquets, vases, and such purposes; nor must we shut our eyes to the fact that in certain cases this is of great moment; but I am disposed to think that flowers have other objects to serve as well as being useful to cut, not the least of which is, that for as long a period as possible they should assist to make our gardens gay and beautiful. Notwithstanding what I have just said, I fear the rage for cut flowers is at present too strong to be easily withstood; but in my opinion it is none the less an evil to find the knife or scissors continually swooping down upon our beautiful border flowers and almost completely stripping the plants of their blooms that the rooms of the house may be specially fragrant and gay. Gardeners have often to lament this, and complain bitterly that the choicest products of their labours are thus culled from the garden where they would delight the eyes of all, and are taken to some private room where they are seldom seen, and where in a few short hours they lie withered and dead. This is one reason why I look upon the Balsam as being a specially valuable border plant, inasmuch as it affords no tempting portions

for the knife or the scissors. The plant itself, if well grown, is of compact habit and exceedingly graceful, but if cut or clipped, it is irretrievably disfigured, and rendered a continual eyesore.

Balsams, like all tender annuals that are to be grown in the open ground, should first be raised under glass, and if sown at once, either in boxes or pans, in a cool house or frame, will make better plants to go into the open border than if sown in heat. For several years I have put out a large number every spring, and find that raised in this way, and allowed plenty of air to make them robust and hardy, they will transplant into the open ground as easily and safely as could possibly be desired. In gardens, where snails and slugs are abundant, it is desirable either to pot-up first what are going to be planted out of doors, or else have them pricked out in a frame, placing them about 3 in. apart, and as soon as the stems are as thick as the little finger they may be removed to their blooming quarters. When so treated, but little harm will result from either insects or removal. I cannot say that in my own case I always take so much trouble as that just recommended, as I very often have the plants transplanted from the seed bed direct to the open quarter along with Stocks, dwarf Nasturtiums, Marigolds, and other things, and as some plants of each kind are always kept in reserve, any vacancies made by slugs or otherwise are quickly made good. I should state, however, that I sow thinly, and allow the plants to get some 4 in. high, and correspondingly strong before planting them out. I prefer dry weather in which to plant them, as during rain slugs work too freely. After the plants have been dibbled in they receive a good watering, and this once or twice repeated soon establishes them, after which they grow rapidly.

The colours and markings in the flowers of the Balsam are sufficiently numerous and varied to suit all tastes, and I find that, as a rule, the more varied the markings the better they are appreciated, especially where only an ordinary quantity is raised, as the produce will not yield more plants than can be utilised in a small garden, and in such a case a dozen diverse colours are at all times more acceptable than are three or four. There is a strain commonly known as the *Camellia* flowered that usually produces blooms of enormous size and substance. I have on several occasions had flowers from it from 2 in. to 3 in. in diameter, and as double as a Rose. Other strains do not give such fine blooms, but still they produce flowers of good quality, and, as a rule, rather more freely than the *Camellia* kind, and they also possess hues of colour and markings that the latter do not, and are therefore necessary in a good collection. I usually grow about a dozen varieties, exclusive of some dwarf or Tom Thumb kinds, that have a remarkably dense, compact habit of growth, and are well adapted for culture in small pots and in houses, where the Balsam will become drawn in spite of all efforts to check it. Of these, the colours are scarlet self, white flaked scarlet, purple, and white flaked purple. The plants, when in full bloom out of doors, are about 10 in. in height and the same in diameter, and look like balls of flower. Selecting a dozen of tall kinds, I should take as especially fine and distinct—pure white, a grand double and distinct variety of excellent habit; blush, a most beautiful form, flowers large and double, and of a fine habit of growth; pink, a very fine double form, possessing a charming shade of colour; carmine, a fine rich coloured variety, having large blooms, some of which are marked with white spots; deep scarlet, a very effective kind, flowers very double, and thickly borne, makes a fine pot plant; crimson Lily, a grand double form, deep rich colour, and fine habit of growth; peach, another equally fine double kind, of good constant habit and a most pleasing shade of colour; purple self, a splendid flower of deep rich hue, growth moderate, and makes a good pot plant, it is also grand out of doors; mauve flaked crimson is a very pleasing variety, the flowers being fine and double, and very abundantly produced; lastly, comes white flaked scarlet, a robust grower and very showy, and although the flowers are not so double as those of some other kinds, it is yet very effective. YAMON.

Alpine Auriculas.—"W. J. M." (p. 386) does not write very clearly about these. He mentions the old yellow with white eye. Probably he means the original species of *Auricula*, which is yellow and has a white centre; then he further says he lost none during the winter except a few green-edged varieties. He also mentions a black kind with a white eye, showing that he is confounding two totally different sections of *Auriculas*. The alpine *Auricula*, as it is now found in cultivation, and distinguished in the best nursery catalogues and prize lists, is a wholly different plant from that described by "W. J. M." The centre of the flower is yellow or creamy, without any farina upon it. The edge may be of any colour, but mostly maroon, claret, crimson, or purplish-lilac. The colour is darkest near the centre, shading off lighter towards the edge. Selfs of any colour, with white centres dusted with farina, are not classed with alpines; they are classed with the green, grey, or white-edged

flowers. All *Auriculas* are hardy; but some varieties, indeed very many, will not stand out of doors owing to their weakly constitution and the changeable character of our winters. We have frost one week; then a thaw; then frost; next torrents of rain; alternations to which the plants succumb. If they were comfortably covered with snow for three months, they would emerge from their winter's sleep healthy and vigorous. Out of many hundreds of *Auriculas*, we did not lose 1 per cent. last winter, and that not from the frost, as we lose as large a per centage in summer. If "W. J. M." is interested in raising seedlings, I hope he will keep his alpines separate from the section dear to the old florists—the green, grey, and white edges.—J. DOUGLAS.

Helleborus foetidus in a Wild State.—Mr. Topley Collier in the last number of *THE GARDEN* speaks of a wish to find this plant in a wild state. He may have his wish gratified by taking a walk on the Lincolnshire wolds. It must be rare as a native, or, at all events, very local, for, though I have been a plant seeker all my life, and have found and collected a great number of our wild varieties in various parts of England, the locality I allude to is the only one where I ever met with it. I found a large patch of it last spring high up on the chalk wolds near Linwood, by Market Rasen, growing in a hollow in a Grass field. The individual plants were not large compared with those we usually see in cultivation, but consisted mainly of two or three leaves and a flower-stalk. There were cattle grazing in the field and the Grass was eaten short, but they had left the plants intact.—F. M. BURTON, *Highfield, Gainsborough*.

NOTES OF THE WEEK.

Spring-flowering Megaseas.—A fine collection of these, both as regards sorts and numbers, is now one of the most attractive objects in Mr. Parker's nursery at Tooting. M. Stracheyi was a little past its best when we saw it about a week ago, but indications of how well it has grown and flowered this year are obvious. What we had never seen hitherto is a pure white variety of cordifolia, though it was scarcely enough expanded to judge of its merits, but it bears the stamp of a first-rate hardy flower. The other varieties of crassifolia and cordifolia are numerous; one or two are particularly highly coloured, so much so indeed as to be scarcely distinguishable from the rare *S. purpurascens*, undoubtedly the finest of all. Those who do not possess M. Stracheyi would do well to obtain it, as it is one of the most beautiful of early spring flowers, and is, moreover, an easy kind to manage.

Fritillaria Moggridgei.—This and *F. Burnati* are two of the handsomest of the European *Fritillaries*, and are both well deserving of culture. They are spring flowering kinds, and bloom about the same period, the flowers of the former being large, drooping, bell-like, and of a clear yellow, conspicuously chequered on the inside with chocolate; the latter has flowers of a similar size and form, and is of a reddish-purple, copiously spotted with a deeper hue. Both may now be seen in flower in Messrs. Osborn & Son's Nursery at Fulham, where they succeed well in a light warm soil. *F. Moggridgei* was figured in *THE GARDEN* last year.

Rosa polyantha.—Among the new plants shown at Regent's Park last week was a variety of this beautiful Rose named Anna Maria de Montravel. It appears to differ from the type in the flowers being double and produced in greater profusion in large loose clusters, which terminate the branches. This will inevitably become a popular Rose and one that will be useful for cutting purposes. It was shown by Messrs. Paul & Son, the Old Nurseries, Cheshunt.

Azalea rosæflora.—This is one of the most charming greenhouse shrubs with which we are acquainted, and it is all the more remarkable on account of its being so distinct from any other *Azalea* in cultivation; indeed, it is an open question whether or not the single-flowered form of it, which, by the way, is not yet introduced, is not a distinct species—quite as distinct from *A. indica* as *A. amœna* is. The rose-flowered *Azalea* has much to recommend it. Its habit of growth is dwarf and compact, and it is remarkably floriferous; even small-rooted cuttings flower profusely, and as such they are extremely pretty. The flowers are double, and about the size of a crown-piece when fully expanded and in the full bud stage they strikingly resemble a Tea Rosebud in miniature, from which character it has derived one of its names. The colour is a clear rosy-pink, quite unique, as far as we know, among *Azaleas*. It possesses all the qualities of a really valuable plant, and should it prove hardy, as it probably will, its value will be much enhanced. Besides being a pretty pot plant, it is especially suitable for cutting purposes, and the exquisite little button-hole bouquets the half-expanded buds make in combination with a spray of Fern will render it a profitable plant to grow for that purpose alone. In Mr. Gower's nursery, at

Tooting, who is now distributing a stock of it, we saw the other day a quantity of plants of various sizes in full flower, and a prettier sight we have not seen for a long time. It is a pity that this *Azalea* should be known under three names. Mr. Gower calls it *A. rose-flora*; it was figured in THE GARDEN some time ago as *A. Rollissoni*, under which name it was certificated when it was originally introduced; and it is likewise called in some of the London nurseries *A. balsamiflora*. Which name should have the preference we are unable to say, but we believe that *A. rose-flora* possesses priority of date.

The Cape Pond Weed (*Aponogeton distachyon*).—Mr. Guson's excellent note of this fine water plant reminds us of the fine sight we saw of it in Mr. Parker's nursery, at Tooting, where it is largely grown in spacious rectangular pools of running spring water, which is of a uniform temperature throughout the year, and consequently the plants are never frozen, even in the coldest weather. The delightful Hawthorn-like perfume from the myriads of ivory-white flower-spikes peeping above the surface of the water quite pervades the air in the vicinity of the pool, and is especially welcome at this season.

The Blood Root and Twin Leaf.—These are two pretty early flowering North American plants, named respectively *Sanguinaria canadensis* and *Jeffersonia diphylla*. The flowers of the former rise a few inches above the surface, and are not unlike a fully expanded white *Crocus*, and the petals are pure white, and enclose a tuft of golden stamens. The leaves unfold later in the season, and are kidney-shaped and glaucous. It takes its popular name from the bright red colour of the tuberous roots. The *Twin Leaf* is somewhat similar in appearance, and grows about the same height, but the flowers are smaller. It succeeds best in a moist peaty soil. It is rarer than the *Blood Root*, though both have been long introduced. We saw some fine tufts of them in the Fulham Nurseries, and they were included in the collection of hardy plants with which Messrs. Osborn took the principal prize at the last show at Regent's Park.

Golden-leaved Hardy Plants.—Mr. Wolley Dod's admiration of the golden-leaved form of *Valeriana Phu* is well merited, for it certainly is one of the most attractive objects in hardy borders at this season. At Kew it is very conspicuous, and the golden patch may be seen a long distance off. There is another plant at Kew almost as conspicuous, and that is *Iris sambucina*, which has its leaves of a golden-yellow shade from the time it first pushes up its foliage till about the beginning of summer, when it gradually becomes greener. As we have never met with this elsewhere, we are inclined to think it is scarce in cultivation, but it is, like the *Valeriana* plant, well worth looking after. Yet another pretty golden-leaved hardy plant is a form of *Aubrietia purpurea*, of which we saw a fair sized tuft in Mr. Parker's nursery, at Tooting, the other day; the leaves are a vivid golden hue, and the pale purple blossoms form a singular contrast to the foliage. It is a very desirable plant for a rock garden, as it is most conspicuous when few flowers are about.

Akebia quinata.—This pretty Chinese twining plant succeeds well in the open air in Mr. Joad's garden, at Oakfield, Wimbledon, where it is planted against a wall close to a bush of *Ceanothus floribundus*, among the branches of which the *Akebia* has entwined itself, and this circumstance probably accounts for its not being injured by the late severe winter. The *Ceanothus* is also in flower, and its bright blue, dense clusters of blossoms contrast strikingly with the claret-red hue of the blossoms of the *Akebia*. In former years before the *Ceanothus* was so injured by frosts, it used to flower more profusely, and then it presented even a finer appearance. The leaves of the *Akebia* are quinate or divided into five leaflets, and the flowers are of two kinds, one seed bearing, and the other pollen bearing, and they are also of different sizes.

Mr Barr's Narcissi.—The collection of these in Mr. Barr's trial grounds, at Tooting, is now a sight worth seeing, the majority of the mid-season kinds being at their best. The Daffodil here receives paramount attention, and the collection is probably unrivalled, both as regards kinds represented and the large quantities grown of each. Of our native kind, *N. Pseudo-Narcissus*, every known form and variety has been hunted up and added to the collection, and now no fewer than thirty varieties of the *Ajax* or Trumpet *Narcissus* are included in the collection. These for the most part are all in flower, and it is very interesting to observe the wide range of variation there exists between the huge golden-yellow flowers of *maximus* and the tiny, dwarf *minimus*. As regards the colour, too, there is every conceivable intermediate shade, from the almost pure white of *albicans*, *moschatus*, and *cernuus* to the rich deep yellow of the common Daffodil type, while some, such as *bicolor*, *Empress*, and *Horsfieldi* have the two combined very beautifully, the trum-

pet being yellow and the petals white. The double kinds are numerous; there is the English, French, and Italian form of *Pseudo-Narcissus* varying only in size, the latter being the largest; then there are double forms of *cernuus*, *capax*, and various others. Some of the new varieties of the *Ajax* section are very fine, and the majority are very distinct from older kinds. There are several new forms of *bicolor*, one of the most noteworthy being *J. B. M. Camm*, with a primrose crown and white petals; *Cowani*, with sulphur trumpet and white petals; *Shirley Hibberd*, of a uniform rich yellow; *Milneri*, sulphur; *Backhousei*, sulphur-white petals and yellow crown, are likewise worthy of note on account of their beauty and distinctness. It is yet rather too early for the majority of the *incomparabilis* or *Mock-Narcissus*, though several of the earlier forms are at their best.

Petræa volubilis.—This is a stove twining plant that well deserves to be more extensively grown than it now is, for few occupants of the stove are so pretty in spring, and its long wreaths of violet-like corollas of a rich purple set in a star-like calyx of a pale mauve, render it highly attractive. There is also a white-flowered variety, but this is even rarer than the purple one. We have seen it lately in fine flowering condition at Kew, and also at Mr. Parker's nursery at Tooting.

Choice Hardy Flowers.—The following scarce hardy plants, among others, are now finely in flower in Mr. Riches' nursery at The Grove, Tooting: *Cortusa pubens*, a charming little Primulaceous plant, in the way of the better-known *C. Matthioli*, but with the flowers of a deep shade of magenta, and the leaves and stem covered with a short, dense, down-like substance; *Pulmonaria dahurica*, quite the gem of the genus, growing but a few inches high, and having a cluster of deep, cærulean, Bluebell-like blossoms, drooping from the apex of a slender stalk; *P. virginica*, also known as *Mertensia pulmonarioides*, is likewise a pretty and rare kind. Its leaves are broad and of a glaucous-green hue, and the flowers of a combination of violet and purple, very attractive even in the bud stage, in which it now is; *Viola calcarata* is one of the showiest of the species, and reminds one strikingly of the now popular bedding *Violas*, the flowers being of a rich purple. The tiny *Androsace Chamæjasme*, one of the most exquisite alpine in cultivation, is represented by fine flowering tufts, as were also such handsome and rare plants as *Jeffersonia diphylla*, *Dentaria digitata*, *Saxifraga Stracheyi*, the latter being particularly fine. We also noticed a fine stock of the *Scarlet Stonecrop*, about which many of our readers have made enquiries since we gave a coloured plate of it in THE GARDEN.

Tropæolum tricolorum.—Although the beauty of this little twining plant is well known and appreciated, yet it is not used sufficiently for winter flowering. We saw, the other day, in the Swanley Nurseries pyramids of it completely covered with flowers, and very handsome they were seen in masses as in the nursery in question.

Glonera (Psychotria) jasminiflora.—One of the most chastely beautiful shrubs we have seen for a long time was a profusely flowered bush of this stove shrub in Mr. Joad's garden at Wimbledon. The flowers are produced in large *Ixora*-like heads, and in size and form resemble a *Bouvardia*, and are spotless white, the surface being papillose or rough, giving the flowers a snowy appearance. It is a most valuable plant, both for decoration in pots or for cutting purposes. Mr. Smith, the gardener at Oakfield, finds it succeed best in pots—far better than when planted out in free soil, though he has given both plans a good trial.

Imantophyllum miniatum superbum.—Lately, two or three fine varieties of the old *Imantophyllum miniatum* have been exhibited, and this is another which in every respect is equal to if not superior to them. It is named *superbum* on account of the remarkably bright and rich colour of its blossoms and the unusually large trusses it produces, which are nearly 1 ft. across. These varieties are so superior to the original type, that they will no doubt quite supersede it when they become more distributed, and they are as easily grown and far more vigorous. We saw several fine examples of the *superbum* variety beautifully in flower in Mr. Parker's nursery, at Tooting, the other day.

National Auricula Society's Exhibition.—We are requested to remind our readers that this exhibition will be held in the conservatory of the Royal Horticultural Society on Tuesday next, the 19th instant. The exhibition will doubtless be very attractive, especially to town's people, the *Auricula*, like the *Carnation* and *Picotée*, yielding results in the highest degree satisfactory in atmospheres positively fatal to the great majority of flowers, and on this occasion visitors will have the additional gratification of listening at 3 p.m. to a lecture by the Rev. F. D. Horner, Vicar of Kirkby Malzeard, an enthusiastic cultivator of this lovely spring flower.

COUNTRY SEATS AND GARDENS OF GREAT BRITAIN.

PENShurst PLACE.

It is pleasing to find that this fine old historical, and indeed world-renowned, building, the seat of Lord De L'Isle and Dudley is maintained in good preservation, having been greatly restored by the present proprietor. Since the time of Edward VI. it has been the house of the illustrious family of Sydney, many of whom have made their mark on the history of the country, previous to which, as far back as the Norman Conquest, it is recorded as having been the abode of many royal and distinguished historical persons, amongst them the De Penchesters, De Pultneys, one of whom had license to embattle Penshurst in 1322, and the Staffords, Dukes of Buckingham. Penshurst is situated on the south-western side of the grand old park, near the confluence of the rivers Eden and Medway, which then become a conspicuous feature, winding through a considerable portion of the large estate, affording some fine river and meadow scenery. The ground rises on all sides, so that the building may be said to be in the centre of a vast amphitheatre of hills, of which many fine views of the old pile may be obtained, which vary greatly in character according to the aspect from which they are seen, but all alike in the harmony which everywhere exists between the building and its surroundings. The park itself, about 500 acres in extent, abounds in many charming picturesque scenes and grand old trees, of which many celebrated artists, both of the past and present day, have taken full advantage. On the northern side the ground rises gradually for about a mile, and from this as a standpoint a very fair scene is presented to the view; the panorama of the distant hills, with the beautiful blue aerial mist hanging over them, is very charming; but the central point of attraction is of course the old building, which from this point is very picturesque and conspicuous on account of the softened neu-

tral tints which age has laid upon it, and the relief afforded to the eye by the numerous patches of well-kept small-leaved Ivies distributed here and there over it. The intervening space is much varied and undulating; on every side are grand old timber trees, some fine old Thorns, here and there a Yew, and some clumps of the red-barked old Scotch Firs, and amongst all, for many acres in extent, a very luxuriant growth of common Fern (*Pteris aquilina*) covers the ground from 3 ft. to 7 ft. high, and on a fair day, with a gentle breeze when the glinting of the sun hangs over the tremulous surface of the Fern, with Lord De L'Isle's favourite Scotch cattle and Highland sheep distributed amongst it, it would be difficult to find a more charming picture; it is no wonder, when we consider the many classical associations which must perforce arise in the mind on contemplating the scene, that so many of our great poets and painters have found in it fit subjects for pen and pencil.

On the right from our standpoint is a row of grand old Beech trees, many of which are 20 ft. in circumference at 3 ft. from the ground, and further on a grove of Spanish Chestnuts which are supposed to have been planted about the time of Queen Elizabeth; their gigantic proportions and picturesque contortions of growth, so dear to the artistic eye, can only be appreciated when standing among them. The largest is 27 ft. in circumference, but there are several which approach that size. On the left the eye is attracted by the fine proportions of the Sydney Oak, familiar to many through the picture in the Sheepshanks Gallery at South Kensington. Southey has some fine lines on a tree said to have been planted on the day the great Sir Philip Sidney was born, Nov., 1554; but as he also, with a poet's license, describes it as mouldered to dust when he wrote, it cannot be the tree in question, which is evidently much older, and nearer 600 years than 300 years, and although it is hollow inside, and capable of containing several people, it is healthy, and may apparently stand for several centuries. Nearly 200 authors have written on Sydney and



Penshurst; *Acanthus spinosus* in bloom in mixed border (August, 1880).

his residence, many of them fascinated by the tree legend; but, considering that Ben Jonson writes of

That taller tree, which of a nut was set,
At his great birth, where all the Muses met,

and that Southey describes the same tree as mouldered, it is more than probable that they both alluded to a very tall and magnificent Beech which stood near by, and which has long since perished. From a planter's point of view it is much to be regretted that there are no more reliable records on the subject than is found in the imagination of the many poets whose hearts have been stirred by the attractive tradition. The circumference of the Sydney Oak is 33 ft. 6 in. at 1 ft., and 27 ft. at 6 ft.; but there is another old Oak about half-a-mile off, hidden in a valley, and but little known, which is much larger, more vigorous, and more picturesque in appearance, and evidently older, the circumference of which at 1 ft. is 34 ft. 8 in., and at 6 ft. 34 ft. 1 in. It is very probable that both these trees are relics of the old Forest of Andreda, which in ancient times covered most of the Weald. Beyond the Oak is a group of old trees conspicuous for some noble old Scotch Firs, which are intermixed with the deciduous trees. It is now the rookery, but was formerly a pleasance of the Countesses of Leicester, laid out in walks and clumps of trees and shrubs. On one side runs a picturesque piece of water called Lancup Well, and, leading from it to Sacharissa's Walk, we pass some grand old Sycamores of large proportions and massive appearance when clothed with their summer foliage. Sacharissa's Walk is so called in remembrance of Lady Dorothy Sydney, afterwards Countess of Sunderland, who was made famous by the impassioned verses of Waller. It is doubtful if the trees originally comprising this celebrated walk are not long decayed, but the name is retained and the site occupied by a magnificent avenue of Limes, which, having been planted rather closely, have run up very tall, and possess a light and elegant appearance, which reminds one of some fine Gothic interiors. The perspective is very fine. These trees are supposed to have been brought over from Holland by one of the delegates who went over to treat with William of Orange, of whom a very influential one was Henry Sydney, afterwards created Earl of Romney.

The above are a few of the more prominent objects of interest near the mansion. In the more distant parts of the park, his lordship, with a prudent forethought for the future, has planted young trees rather extensively, designed on such a plan as will add greatly to maintain the beauty of the park in after years—notably an avenue of the true London Plane (*Platanus occidentalis*) on the highest point, and 1 mile in length, which some day will rival those of Boughton; and lower down, in a Chestnut plantation, an avenue of Wellingtonias, which at no very distant date will be a conspicuous landmark for many miles, and near by a large plantation of Spruce, from 30 ft. to 40 ft. high, which has already a very imposing appearance, the secret of which is a repetition of the same form of tree on a large scale.

From Sacharissa's Walk we pass on to the gardens, which have been greatly improved of late years, and we are very glad to find that this has been carried out without at all interfering with their fine old features, which are quite in keeping or unison with the appearance and style of the old building. They are wholly enclosed within walls in the shape of a parallelogram about 930 ft. in length by 600 ft. wide, of which the building forms one half of the upper longest side, and facing southwards, the flower garden being opposite to it. The lower part is devoted to a very productive kitchen garden, in which fruits and vegetables attain great perfection. Asparagus, for example, is cultivated largely on the French

system, in rows 4 ft. apart, which Mr. Bridger, the experienced gardener, considers infinitely superior to the old method of crowded beds; the fruit trees, both on the walls and standards and pyramids, are healthy and productive, being kept so by frequent surface dressings of fresh material, which all old borders require. The two divisions are separated at the principal entrance by a broad gravel walk leading to the gardener's house, which may be described as an avenue of tall standard Apple trees in a double row on each side, but it is something more than that in the summer and autumn, as the first row is planted close to the edge of the walk, and at the back of each is planted a stout Hop plant, amongst which are distributed Vines and Clematis; these climb up the stems and through the branches, and form natural festoons of varied colours over the walk, which at the time the Hops and Clematis are in bloom is a most striking and beautiful arrangement, especially as on either side is a wide border filled with old-fashioned herbaceous and other ornamental plants and Roses, all of which are kept in a healthy and flourishing condition by annual dressings of rich manure at the fall of the leaf, without which the borders would soon become exhausted. Perhaps the most striking features of these gardens, and one which is so entirely in character, is the great length, about a mile of beautifully kept substantial Yew hedges, not tortured into Topiarian monstrosities, but square clipped and thick, which not only separate the two divisions, but are carried out on each side so as to form a great number of squares and oblongs, affording invaluable shelter from the influence of high winds.

In one of these enclosures are hidden several ranges of substantially built and light, heated span-roof pits exceedingly well adapted for the growth of plants, which, being mostly required for indoor decoration, are principally soft wooded and afford scope for frequent changes. In a portion of one of these pits, his lordship and his enthusiastic gardener are gradually getting together a very interesting collection of Orchids, looking very healthy and well managed. We recently noticed good flowering plants of *Odontoglossum Alexandræ*, *O. Roezli*, *Phajus grandifolius*, a good mass of *Dendrobiums*, *Cypripedium villosum*, very fine, with other younger plants growing into specimens; and amongst many other very useful plants in a colder pit, some very fine plants of the old *Francoa ramosa*, seldom met with, but a very highly decorative plant. Passing onwards in front of the gardener's house, is a group of rockwork very naturally arranged, with a small cascade and a basin of water for aquatic plants; and further on, a span-roofed house, which, like all the glass erections, is very substantially built; it is divided in the middle, one end being planted with Peaches, and the other with Vines, healthy young trees just coming into good bearing; the centre of the span is raised for ventilating purposes, and under this a Vine is being trained from end to end, thus combining a little ornament with utility. The water which falls on the roof is conveyed into a large tank under the centre pathway, with openings for the insertion of hose for syringing and watering purposes. A large lean-to double Vinery is near, in which are some thriving young Vines.

It now remains to notice the flower gardens opposite the house, and here we have one of the best preserved examples of the style which prevailed in the Elizabethan age, probably, in the country; the beds, which are marked out by Box edgings about 1 ft. high, are continued on the same lines which existed 300 years ago; they are planted with a very fine collection of old-fashioned plants such as would have delighted the heart of the celebrated author of "Essays on Gardening," whose partiality for the plants that blossomed at

the different seasons of the year was a marked feature of his character. Some years ago the gorgeous inflorescence and brilliancy of colour which characterise the bedding-out system was tried here on a large scale, and with marked success had it only been placed elsewhere, but it was found that it entirely destroyed the harmony of parts and repose which one would expect to find in the immediate surroundings of a fine old building with so many memorials of olden time clinging about it like Penshurst Place, so that a return to the old style of planting was inevitable—his lordship's opinion of the bedding-out system being recorded as follows: "twelve months' labour, nine months' fallow, three months' flower."

JOHN COX.

THE INDOOR GARDEN.

PLANTS FOR HANGING BASKETS.

NOTHING adds more to the general good appearance of a conservatory or greenhouse than a few well-furnished baskets suspended from the roof. They impart variety, break up monotony, and altogether impart to the interior of the structure a varied and pleasing appearance. The reason why basket plants are so seldom seen in good condition—I am making now especial reference to amateurs' greenhouses—is, I think, because, in the first place, many are not acquainted with the best and most suitable subjects for the purpose, and then again they are apt, through not being immediately under the eye, to get neglected in the matter of watering, the consequence being that that which should form one of the greatest ornaments in the glass structure degenerates into an unsightly object, and is removed in disgust. Now, all baskets suspended in glass structures should be so fixed as to allow of their being easily examined, and this cannot well be done when the labour of mounting upon a pair of steps is involved each time that the grower wishes to ascertain the state of the soil. A small pulley fixed in the rafter entirely obviates this difficulty, as by a strong piece of cord being attached to the chain of the basket and passed through the pulley, the basket may be lowered easily at the will of the operator. It should always be remembered, and this is a point, simple though it be, that many appear to lose sight of, that a plant in a basket leads an entirely different life from one in a pot. The exceptional facility afforded for the free exit of superfluous moisture entirely obviates all danger of stagnation at the roots, but it exposes the plant to that of suffering from want of the sustaining fluid; the young fibres, which invariably manifest a tendency to gravitate towards the outside, being but thinly protected against the drying atmosphere, are apt to sustain serious damage when the soil becomes unduly parched. The mass of earth containing the roots swinging high and dry in mid-air dries out in much less time than that in a pot on the stage below, and continually demands constant attention with the water-pot; in fact, the soil should never become dry. Very often the reverse of this is the case; the supplies of water given are few and far between, so that where there should be beauty and luxuriance there is nothing to be seen but meagre foliage and stunted blooms. Unless a basket plant is thoroughly well grown, it is worse than useless; it is an eyesore; a constant reminder to the grower that neglect of some kind has been practised; but how different when all has been done that should have been done! then the basket plant in its amplitude and beauty of leafage and abundance of bloom, gives the grower great satisfaction and repays him well for all labour and time bestowed on it. In the first place, I will give a few hints on

Filling the Baskets, for in this, as in all that concerns horticulture, so much depends upon a good start. In the first place, I would advise that the baskets be not too large. For a small structure I think that they should not exceed 12 in. in diameter, and in many cases I would say that 9 in. would be enough. There is nothing gained by having large receptacles, but there is by adopting small ones, they being more easy to manage and furnish, thus enabling the grower to obtain greater variety. I consider it also a mistake to cram many subjects into the same basket; generally speaking, one kind of plant is enough, although there are cases where a fringe of some dwarfier subject is admissible, and sometimes, as when baskets are made up in the summer of free-growing plants, a judicious mixture will, by its variety of form and colour, prove effective and pleasing. Commence by lining the basket with moss, and then a few pieces of crock in the bottom, finishing off with some lumpy peat or loam as the case may be. On this lay some finer material, and then place some more lumps round the outside, adding more com-

post, which, by-the-bye, should be well sanded, and so on until the basket is filled to within 2 in. of the rim. Press the lumps placed round the outside of the basket very firmly together, which will prevent the finer particles of the compost employed from working out through the moss. The compost itself will, of course, have to be varied according to the nature and requirements of the parts employed, but in all cases take care that it is free and somewhat lumpy. When the soil is fine it is apt to come together too closely, and, forming a firm surface, the water cannot enter so freely as should be, much of it running off or through the meshes of the wire-work, the roots getting but little. The present is an excellent time for planting the baskets, as they will, if carefully tended throughout the summer, get well established and become ornamental by the winter. The following are a few of the best and most telling subjects that can be employed for this purpose. They are selected on account of their distinct character and easy culture:—

The Elk's-horn Fern (*Platycerium alcicorne*).—This plant is not only very distinct and beautiful, but quaint and picturesque. The fronds are dark in hue, leathery, grassy, arching gracefully, and divided at the extremities into two segments of unequal length. It succeeds in a pot, but is more at home in a basket, as the curious shield-like formation at the base of the fronds is then more fully displayed and it does not damp off, as is often the case when pot culture is resorted to. *Platycerium alcicorne* combines in itself many high qualities, for although it has a most decidedly tropical appearance, it thrives in a low average temperature, grows freely, forming quickly a large specimen, and, unlike the majority of the Fern tribe, evinces no great repugnance to tolerably free exposure to the sun, bears with equanimity drying currents of air, and does not suffer greatly when for a time unduly deprived of water at the roots. Were this Fern better known amongst small growers, it would more frequently be seen in greenhouses that it now is, as it keeps in good health when wintered at a temperature ranging at 45°. I may also mention that it is an excellent subject for window culture, succeeding much better than most plants in the close atmosphere of a constantly heated apartment. The leaves, being leathery and almost entire, are easily sponged and kept clean. It requires fibrous peat and sand.

The True Maiden-hair Fern (*Adiantum Capillus-veneris*) is also an excellent basket-Fern, and when it is well managed makes a very pleasing subject. A good way to grow this plant is to plant in the ordinary way in a small basket, and when the surface soil is covered with its creeping rhizomes, just bend a few pieces of wire over them from one edge of the basket to the other to keep all in place, and then turn the basket upside down. The creeping stems will then work through the soil, and eventually clothe the whole outside of the basket with foliage. Other good Ferns are to be found in *Davallia dissecta* and *bullata*, which have finely divided foliage and creeping stems, *Nipholobolus Lingua*, and *Goniophlebium subauriculatum*.

Panicum variegatum.—This is a pretty little variegated plant, suitable either for forming a basket alone or for being employed with other subjects. When any erect-growing plant, such as a *Dracæna*, is used for the centre of the basket, the *Panicum* may be used with good effect to form a fringe to it. The variegation is distinct and constant, and the foliage, drooping down over the sides of the basket, completely hides it, and produces a very happy effect.

Tradescantia zebrina.—This is an old inhabitant of our gardens, but in its own particular way is unsurpassed. There is something very rich and attractive about a well-grown plant of this *Tradescantia*, and when it droops down and forms, as it will do when cared for, a dense curtain of beautifully-marked foliage, the effect is so good that one is ready to admit that this old plant is one of the most pleasing in cultivation, and is well worthy of good cultural care. About every two years it requires reviving, which is easily done by taking off young shoots in spring, and dibbling them in free sandy loam and peat, affording some little heat to give them a start. It requires a temperature of 50° to 55° in the winter, and thrives admirably in a warm room.

Ivy-leaved Geranium L'Elegante.—Here we have a plant which cannot hardly be too highly praised for our present purpose. It is pretty and constantly variegated, bears a profusion of large delicately coloured flowers, and will grow to great perfection in any draughty, exposed situation. Not only is this the case, but it will last for years in good condition without needing repotting, a little weak manure water during the growing season being all that is required to maintain it in a healthy effective condition. I may safely say that this plant is far too little grown by amateurs, and I am sure that all who might once grow it would be charmed with it, being so effective and easily grown. All the Ivy-leaved *Geraniums* make good basket plants, but this one I consider to bear the palm

It loves the sun, and flourishes when fully exposed to its influence under glass, and thrives in a cool apartment, but not in close confinement, loving a free circulation of air when growing and perfect rest in the winter.

Tropæolums.—The winter-flowering section of these make excellent subjects for basket culture, and where large receptacles have to be filled they will be found of great service. They should be planted in the summer, so as to get well established by the winter. Being of free growth, they will soon cover the basket from view, and will, by reason of their numerous brilliant flowers, create a striking effect all through the winter, but especially in early spring when the sun has acquired sufficient force to impart strength to the foliage, and cause the free production of bright hued flowers. A rich free compost is needful for these, and they require a little stimulus at the turn of the year; in fact, as soon as the bright days come administer weak liquid manure several times a week or the foliage will turn yellow.

Epiphyllums.—For a warm structure, where a temperature of 50° to 55° can be maintained, these bright winter flowering plants are very suitable. For this purpose, it is not necessary nor even desirable to work them; by dibbling strong shoots round the edge of the basket, an excellent effect will be obtained. Use soil of a fibrous sandy nature, say loam and leaf-mould in equal proportions, adding to it a little crushed charcoal, for free drainage is absolutely necessary in the case of these fine winter flowering subjects.

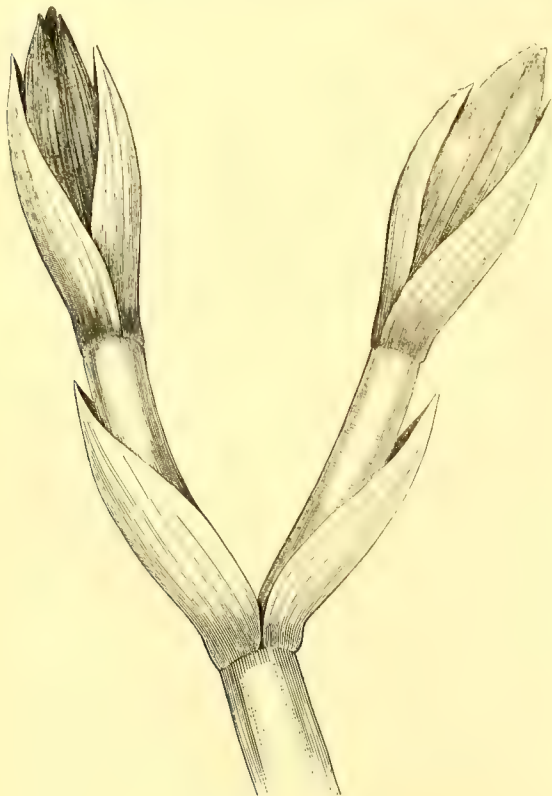
The Moneywort.—This forms an elegant basket plant for a cold structure. The foliage is dense and lustrous, and the flowers, which are golden-yellow, are so freely produced as to render it a conspicuous object when in bloom. It requires a rich soil and abundance of water when growing. There is a golden leaved variety very pretty, and equally suitable for basket work.

Byfleet.

J. CORNHILL.

MALFORMED AMARYLLIS.

LAST winter I had a plant of Amaryllis which threw up a strong scape bearing four perfect flowers. This winter it threw up two



Malformed Amaryllis.

scapes, both appearing very nearly at the same time, and keeping pretty well apace in their upward growth. The plant is now in full vigour of growth, both of the scapes having their flowers

well expanded. The one has four very perfect flowers, the other one has five, and of this latter the accompanying is an illustration made in February before the buds were expanded. This latter scape measures at its base ($2\frac{1}{2}$ in. above the neck of the bulb) exactly $1\frac{1}{2}$ in. in diameter. You may easily imagine my astonishment when after the unfolding of the large spathe I should see developing two great peduncles, each bearing its own second spathe and buds. The flowers (nine) are to-day fully expanded and very effective.

W. OTTO GRONEN, C.E.

Rock Island Arsenal, Illinois.

CAPE PELARGONIUM.

(P. TRICOLOR).

NOTWITHSTANDING the numbers of Pelargoniums introduced to our gardens from the Cape of Good Hope during the last century



Cape Pelargonium (P. tricolor).

and the early part of this, it is quite an uncommon event to find any of them in cultivation at the present time, although among them may be found some really beautiful plants which, for depth of colour in some and delicate markings in others, are unequalled by any of our modern large-flowered kinds. The kind called *Ardens* is quite unapproached as far as brilliancy is concerned by any modern hybrid in cultivation, while the contrast in colour between the upper and the lower petals in the species here illustrated renders it quite distinct and effective. It is still sometimes found in gardens in the form of a little bushy plant of about a foot or so high. Its growth is rather slender, but the flowers are freely produced; the upper petals are deep crimson, with a nearly black blotch at the base of each, and the three lower ones are pure white. This species, in common with many of the others belonging to this class of Pelargonium, is often lost from being overwatered during winter. Unlike the ordinary gross-feeding kinds, these Cape varieties succeed best in soil consisting of one-half turfy loam, one-fourth leaf mould, and one-fourth fibrous peat with a liberal mixture of sand. The roots being very delicate, it is necessary to secure good drainage, and if the plants are kept in comparatively small pots, only watered when necessary, and given plenty of air on all favourable occasions, they will be almost sure to succeed. They may be struck from cuttings made of the half-ripened wood and inserted in well-drained pots filled with sandy soil, but even in the cutting state they must not be kept too close; a light shelf near the glass suits them perfectly.

ALPHA.

CYCLAMEN CULTURE.

AT one time market growers used to sow in January, allowing themselves only some ten months to get the plants along into good blooming specimens. At the present time, however, the greater portion of them sow at the close of the summer, getting the young plants well up by the autumn. How much better such a practice is it is easy to see, for the little plants being kept at a low temperature until the latter end of the year, are brought into a comparative state of rest, and therefore quickly respond when subjected to the influence of gentle warmth at the turn of the year. It is also easy to understand that the grower is not so pressed for time when instead of being engaged in sowing the seed he may be potting off sturdy, healthy young plants. I believe that many fail in Cyclamen culture simply because they do not take time enough to their

work; they are obliged to resort to more or less of high pressure in their operations, the result of which is that just at a critical moment a complete break-down takes place; the young plants being subjected to an amount of heat, coupled with close confinement entirely foreign to their nature, strike to the work, and often stand the remaining part of the season without making any apparent progress either in leaf or root. Such is, I believe, the history of many a promising young lot of plants ruined by the injudicious application of strong heat. The Cyclamen is a plant that must be coaxed, it will not be driven along at a rapid rate, and the attempt to hurry it into quick or rather rapid growth will only have for result vexation and disappointment. The development of a Cyclamen during its early stages of growth is curious, and may be watched with interest; indeed, all who grow this plant should make themselves acquainted with its physiological peculiarities, a thorough knowledge of which greatly helps the grower, and will better enable him to fit his operations to its requirements. When the seed is committed to the soil it forms itself into a bulb at once, from which issues a single leaf. This leaf in due time attains its full development, and then from this miniature bulb there issues another leaf, and then another, until some five or six are brought into existence. As the corm increases in size we

begin to see that the young leaves come, as it were, in batches. A certain number of leaves are formed, and whilst these are being perfected the plants appear to be to a certain extent at a stand-still; but it is not so; there is much work going on in the young bulb, which is consolidating itself and gathering up its strength for the ultimate thrusting forth of a fresh set of leaves from eyes, the gradual formation of which the corm can be seen when it has come to the size of a nut. Now, these resting periods, so to say, of the Cyclamen in its growing state are what puzzle the inexperienced. Development is not sufficiently rapid to meet their views of good progress, and they give a little more heat, the result of which is not growth, but an elongation of the tissues and a diminution of the vital forces of the plant. I will, however, say no more upon this part of the subject, as my intention is not to write an exhaustive cultural article, but merely to afford a few hints to the inexperienced in Cyclamen culture. What I wish to impress upon the would-be Cyclamen grower is that this plant does not require so much heat as is generally given it, and that its culture may be attempted by all who have the convenience of a frame or greenhouse. Young plants obtained from seeds sown in the late summer months will, if they have been wintered in a cool structure—a frost-proof frame is the best place, better than the dry stage of a greenhouse—be provided with several healthy, hardy leaves, and if such are potted at once they will make good plants by the autumn if merely afforded cool treatment; never having been in any way excited, they will move with the season, and will grow freely when the summer arrives. And now a few words with respect to soil. Let me beg of all intending to take up the culture of this charming winter flower to avoid heavy, retentive, or very rich composts; such are not suited to its wants, and the tender rootlets cannot force their way through, the effect of which is to deprive the plant of that "go" and vigour which a lively root-action always induces. Leaf-mould two parts, loam one part, a little well-decayed manure, and plenty of silver sand; this is the soil that best suits the Cyclamen.

J. CORNHILL.

CELOSIAS AND THEIR CULTURE.

FROM early spring until late in autumn we cultivate these beautiful annuals; and I know of no plant which can be grown so quickly and with so little trouble that is so valuable for greenhouse and conservatory decoration throughout the summer. It is no difficult matter to have them in bloom from May until December; and those who have not yet grown them would, I am sure, be more than pleased with a trial of them during this season. They are not sweet-scented, but their brightly coloured plumes have a pleasing effect when mixed with other flowers in either a growing or cut state. They are well suited for church decoration, and they remain perfect a long time in either hot or shady rooms. They do not afford any inducement or harbour for insects, and if they are only grown on, bloom is sure to be the result. This will take place whether they are in a 3-in. pot or 12-in. one. I only state these facts to induce those interested in subjects of the kind to grow them; and it may further be stated that if a little extra attention to what has been indicated is given to them, their attractiveness will increase in proportion.

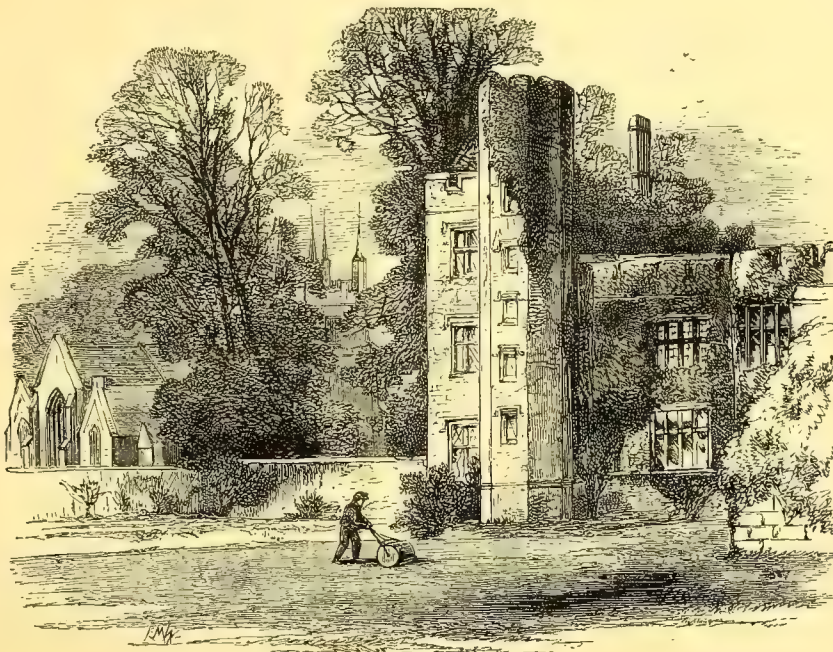
The only way to raise a stock of Celosias is from seed. From a small packet of seed some scores of plants may be had. No time should now be lost in sowing it. A 6-in. potful will be sufficient

to afford a good batch of plants. Drain the pot well, and then fill it up with some good mixture of loam, leaf soil, sand, or an open mixture of any kind. When this has been made firm, sprinkle the seed thinly on the surface, and merely cover it over with a little more of the soil. If it is then placed in any close frame, or pit, or even in a greenhouse, the young plants will soon appear; and if they are then placed near the light, it will prevent them from being drawn up, as they are inclined to become long in the stem when grown far from the glass. When each plant has formed two or three leaves the whole should be taken from the seed pot, and be placed singly in

small pots. Loam, sand, and a little decayed manure form the most suitable mixture for them at this time; and the same may be used for them at all subsequent pottings.

As I do not wish to confine their culture to any particular mode or place, I will not say where they should be put after potting; but I will simply state that throughout all their growth they will do admirably under the same treatment as pot Geraniums, Fuchsias, and similar plants. They require no bottom heat, and unless they are wanted in a hurry, a stove temperature need not be given them. When they are wanted to bloom early they may be confined to small pots. If large plants are desired they must never be allowed to become pot-bound until they have gained the required proportions. If there is any doubt about the whole of the plants potted not being of the best description, the worst may be weeded out before they are potted a second time. Yellow and crimson of some shade are the two best and most decided colours, and the plants which are going to be most distinct in this respect will show it early in the colour of their main stems. Those with the brightest stems always produce the highest colours.

From seed sown now, flowering plants may be had in June, and if another batch of young plants be raised, then they will keep up a succession until Christmas. Young plants may be grown in a cold frame throughout the best months of the year, say from June to the end of September. Some of them may show flower when very small



Penshurst, from the garden.

and long before they are wanted, and in this case it is only necessary to pinch the points off with the finger and thumb, and thereby cause them to emit later side-shoots. As they root freely, the pots may become full before the plants are fully developed, and then liberal quantities of liquid manure should be given them. Should any insects become troublesome they may easily be removed by means of the syringe; but, through good feeding at the root, we are never obliged to put them under any particular treatment to check insects. Some plants are grown in close pits and frames until their flowers are fully developed, and they are only then removed to decorate the conservatory; but *Celosias* may be placed in that structure from the time they begin to show flower, and they will continue to increase in attraction. The largest *Celosia* plants I ever had were grown on a wide shelf in the back of a Pine house. They were more than an armful round, and quite surpassed any pot annuals I ever saw; but when grown in so much heat like these they are not so useful for placing in airy greenhouses or rooms as plants that are grown more hardy. Although I could grow plants of the kind in the same place every year, I do not do so, as my main object is to get them sufficiently hardy to stand in an unheated greenhouse the greater part of their time, and it is chiefly through their doing this so well that I am so anxious that people should grow them. CAMBRIAN.

PANSIES IN POTS.

I OFTEN wonder that the Pansy is not more frequently taken in hand by the owners of small gardens than it is. Its culture in pots would give a large return for the time and labour expended. In the generality of gardens one sees frames which owing to the fact of their being unheated are made but little use of during the winter months. Sometimes an attempt is made to winter tender bedding plants in them, and in a general way great is the disappointment that such an effort causes, for if frost does not work havoc amongst the inmates, that quite as much to be dreaded foe damp sweeps them off in a complete manner. Were my advice sought for upon this matter, I would say give up the attempt to winter tender plants in cold structures, and devote the space to such subjects as find a congenial home therein.

Choice Varieties of the Pansy delight in the amount of protection that a glass roof affords them; they pass the winter happily in such to them easy quarters, and come forth in the early spring bright and fresh, and all aglow with beautiful bloom, a source of joy and satisfaction to the happy owner, who is enabled to secure a fine show of flowers for his greenhouse or dwelling at a time when winter's icy breath still sweeps over the earth. Those who know the Pansy well are aware that the first blooms (those made in the early spring) are in every way the finest and brightest in colour. Strong heat and an arid atmosphere do not agree well with this fine spring flower, but under glass, where the power of the sun is just sufficient to stimulate the functions without inducing much growth, the flowers of the Pansy attain a rare development of size, substance, and colour.

Seedlings.—Those who would wish to employ the Pansy in the manner here suggested should, in order to do so, go in for seedlings only, and if in these there is something lacking of that perfection of marking and symmetry that distinguishes the best named kinds, they certainly will exhibit great diversity of colour. Seed of a good strain should be sown without much further delay. This may be committed to the open ground, and when soil, season, and care are favourable, it will come up freely enough. My advice would be, however, to sow in a well drained pan, and place the same in a cold frame. When the seed is up, the difficulty, if there is any at all, of Pansy culture is mastered. All that one has then to do is to prick the young plants out when large enough to handle in pots or pans, or better still in the open earth in a frame, and give them such little attentions as may be necessary to enable them to attain that strength, hardiness, and vigour of constitution which will fit them for a residence in the open air during the summer. The experienced grower will not need to be told what to do to ensure this desired end, but the tyro in such matters may be glad to learn that the necessary treatment consists in sprinkling frequently, to promote a growing atmosphere, for the Pansy loves moisture at the root and in the air; giving at all times abundance of air, merely protecting against those climatal vicissitudes and extremes that are known to be injurious to the hardiest of flowering plants. When the little plants have waxed strong and hearty, they will be provided with an appetite for rich food, and this must be given them, for on the summer's growth depends the display in spring, and the Pansy will make but little headway in a poor, parched soil. Perfectly free, too, the compost should be, well stirred up and subjected to the sweetening influence of sun and air before committing the plants to it. But here a word of caution. I have said that the Pansy

likes rich food, and so it does, but that food may, if of an improper nature, or if injudiciously administered, be a source of disease and decay instead of imparting health and strength.

Any Manure that may be mixed with the soil at planting time should have been by previous exposure to the elements reduced to the consistency of mould. When such a manurial ingredient is not at hand, work in a coat of soot only, and topdress with good manure later on. Water freely in hot weather, and sprinkle overhead morning and evening on fine days. By pursuing this treatment all through the summer, the grower will be rewarded for his pains by having a fine lot of sturdy, healthy little specimens, which being carefully lifted in the autumn, and sheltered as before directed, will prove a source of pleasure and interest when there is but little colour and beauty out of doors. Those who prefer to cultivate named, show, or fancy kinds may gratify their desire, and may attain fine specimens in much the same manner. The only difference is that cuttings must be struck early in the summer, and then be grown on freely. Do not take the leading flowering shoots; these seldom make good free specimens, but choose the smaller growths which spring from the base of the plant. These make root freely, and soon form themselves into nice little specimens. J. CORNHILL.

Byfleet.

SPORTING IN CARNATIONS AND PICOTEEES.

ONE of the most annoying peculiarities of the Carnation and Picotee, and one which has lately been noticed in *THE GARDEN*, is what is termed by florists "running," a propensity rendered all the more irritating by the circumstance that there is no avoiding it. A scarlet flake is carefully tended and treated for exhibition; it blooms; size, shape, substance faultless; but instead of being a scarlet flake, it is a scarlet self, a superior Clove, fit for the border and cutting. A choice Picotee is ministered to with all the care it is possible to imagine; it blooms and its shape is faultless, but the edge has barred, specked, or flaked the ground or gently suffused the petal. How, then, is this to be avoided? A great many people have asked the same question. A score of different causes, natural and artificial, will produce this unrehearsed effect, such as wind, rain, cold, heat, wet, drought, but the most frequent cause, and one which can be more or less remedied or avoided, is the use of too rich and stimulating compost, of manure water in excess, and other too assiduous attentions. The plants like to be looked after, but not worried. In the year 1876 some very interesting notes appeared on the subject, which were shortly as follows: The first correspondent used only plain rotted turf, liberally mixed with charcoal, not a particle of manure and only one dash of weak liquid manure in June, but the plants and flowers were the surprise of all, though few, and far superior to those of the previous year when they were grown in what is termed a rich and generous soil. . . . there was an almost total abstinence of that great drawback, run flowers. This shows that at least in this case the absence of stimulants was an advantage. A second correspondent, however, writes, "I have cultivated Carnations for about 6 years with very indifferent success, though I have taken the greatest pains with them. I have an undue proportion of them run both in rich, middling, and poor compost both in pots and in the open ground." This is rather unsatisfactory; and when the writer grew them in the following 3 composts, 1 of loam and 2 of manure, 2 of loam and 1 of manure, and half-and-half, the last mentioned compost produced the worst results. Thirdly, and lastly, let us take the experience of Mr. Newhall, at Woolwich, who writes as follows: "The experience and observation of some years incline me to reject the idea that composts in any material degree either induce or prevent the propensity to sport observable in Carnations which we term running. I have, by way of experiment, grown them in soils of various enrichment, from pure sandy loam to unalloyed decomposed animal manures, with about equal results in that respect. Take a given number of plants propagated from the same original, pot them into the same pot, and some of them will probably be run. . . . I view it simply as a natural tendency to sport (observable in other flowers besides the one in question) . . ." The opinion of Mr. Dodwell, however, is that this phenomenon is chiefly the result of the compost not being thoroughly mixed and sweetened, or the drainage being imperfect. In fact, nothing can be truer than Mr. Dodwell's remark, "that sound, healthy life, whether in the animal or vegetable kingdom, is quite inconsistent with the habitual use of a highly stimulating diet." Therefore, the only way in which I take it this irritating sport can be guarded against is to let the several heaps of manure, loam, and leaf-mould stand under shelter in the open air for as long as possible before mixing, and when mixed for as long as possible before using, turning over heaps when separate or mixed on every available opportunity, and being careful to have thoroughly efficient drainage, if necessary or practicable, mixing in little bits of charcoal liberally when potting. The Carnation grower must, however, bear in mind, that in localities

from natural or artificial causes unsuitable for the culture of these plants, they will very naturally want more stimulants than if grown under more favourable conditions.

GIROFLE.

Imantophyllum miniatum.—For the embellishment of greenhouses or conservatories this is one of the finest plants that can be grown, as it sends up numerous umbelliferous heads of orange-scarlet Lily-like flowers that last a long time in perfection. In habit and general appearance it greatly resembles the *Agapanthus*, but has stiffer and darker foliage, and blooms resembling those of the *Vallota purpurea* in size and colour, so that any one acquainted with this latter may easily imagine what a fine effect they produce. Not only is the *Imantophyllum* useful for greenhouses and conservatories, but it also makes a fine window plant, as it stands the treatment well, and, being fond of water after it gets in a pot-bound state, it is never injured by standing in a pan, or being kept wet. Dust is the great enemy to most window plants, but as the *Imantophyllum* has thick, shining, leathery leaves there is no difficulty whatever in keeping them clean, as they may be easily washed without injury. In order to increase this plant, take off any suckers which it shows, if possible with roots attached to them, as then they are sure to grow if placed in a pit or house where they can have a little heat for a time. The soil that suits them best is fibry loam and sand, but, as the roots are very large and fleshy, the loam should be rough and lumpy and the potting loose, in order that they may be able to ramify the more freely. To winter the *Imantophyllum* well and safely, a higher temperature than that of an ordinary greenhouse is required, but where this cannot be afforded it should have the warm end, and be kept a little dryer than usual. In order to get plants to flower freely, the point is to treat them well through the spring and summer by supplying them liberally with water and liquid manure, as then they are sure to make a strong growth.—S. D.

NOTES AND READINGS.

Sunken houses for Orchids and other plants have been lately recommended. Such structures are by no means novelties in English gardens, although they belong more to the past than the present order of things. There can be no doubt about the fact of a house partly sunk in the ground being a better conservator of heat in winter and cooler in summer than a house standing above the ground, and suiting some few subjects like *Cinerarias* and *Calceolarias*, &c.; but such houses are not to be recommended generally. They are ugly, stuffy, and mildewy structures, as those who attempt the culture of fruit trees and plants in them will find out. Their one advantage is that they save a little fuel, but not much. Neither do we share the German view that plant stoves, Orchid houses, and similar structures require but a small number of ventilators, and that these should only be "movable hinged panes fixed in the upper portion of the roof, and work independently of each other." This is just the state of things that modern hothouse construction has emancipated us from, and the idea of going back to it is not agreeable. Gardeners of all degrees have reason to thank the day when the "continuity" ventilating shutter, and the rod and lever, were invented, for both have saved them much labour, and greatly contributed to successful culture in all glass departments. It is just possible that our present expensive front-lights, as put up in this country in Vine and other forcing houses, may account for "the miserable French Beans, bedding plants, or the like," which the latter contain, but we are sure—perfectly sure—that German "earth houses," with their top and bottom ventilating "orifices," will not supersede them, however much they may please those who are only accustomed to the latter, which are to our present glasshouses what the stage coach or the carrier's wagon was to the railway of the present day.

It is gratifying to find the old single red *Camellia* coming into favourable notice. It is a stranger to our conservatories as a decorative plant. Numbers of gardeners never saw it in flower, and are therefore entirely ignorant of its true character. It stands in the fore front of real pretty and showy *Camellias*. We have seen the plants belonging to Fisher, Son, & Sibray, of Handsworth, and although the stock is small the plants have attracted considerable attention among visitors to the nurseries. The plants we saw were not more than 1 ft. high and were literally smothered with flowers of a bright magenta-red colour, in striking contrast with their bright yellow stamens and anthers. Mr. Fisher is of

opinion that there may be better and worse varieties. At Hands-worth the plants were raised upon inverted pots in one of the show houses to exhibit them, and their remarkable bright and striking appearance struck visitors the moment they entered. Individual flowers afford but little idea of the effect produced by a plant of *Camellia japonica* in full flower, although singly they are quite equal to the much and deservedly esteemed *Lapageria rosea*, their stiff waxy petals and tube-like construction reminding one of the *Lapageria* more than anything else. The plant only wants to be made better known to secure a good place for it in the conservatory.

The courteous writer of "Garden Thoughts" has kindly favoured me with a note from his correspondent Mr. Gernett respecting the *Maréchal Niel* Rose, in which Mr. Gernett remarks that this Rose "seems not to be able to make sufficient roots of its own to feed its enormous growth, and requires a good foster parent." There is much truth in this. There can be no doubt about the *Maréchal* being a feeble rooter on its own roots, and the fact has been noted by many cultivators, though never commented upon before so far as I am aware. The roots of all Roses are, as a rule, disproportionately small compared to their tops, but the small quantity of roots a large-headed *Maréchal Niel* usually has is one of those things that confounds the physiologist, who believes implicitly in the reciprocal action theory—that root development is a question of branches.

But there is another matter connected with the under-glass culture of the *Maréchal Niel* which demands consideration. If it be true that it has a weak constitution it is all the more needful that its treatment should as far as practicable be right and reasonable, but I fear this is not the case. It is not its nature, nor the nature of any Tea Rose, to grow uninterruptedly all the year round; it needs rest; but as it is easily grown it receives none, and is kept continually growing. We know of no instance within our own experience where this is not the case. The conservatory or greenhouse is the place where it is grown as a rule, and these structures are kept at a temperature that compels Tea Roses to be continually on the move, and the growth they make between November and April is very considerable. Can such growth be healthy and enduring, or form a good basis for the real or summer growth to proceed from? Certainly not. The winter's growth is what Lindley would have called "a mere prolongation of the tissue," possessing neither strength nor vitality. The Rose wants complete rest just as the Vine does, and the best place for it is in an orchard house which is kept quite cold in winter.

Gardeners know well that the "comfortable temperature" business is the bane of plant culture in conservatories and glass sanatoriums. In structures which are furnished by pot plants it answers well enough, but for permanent structures it will not do. There are owners of aristocratic conservatories who wish—and their wish is law—that the temperature of their conservatory be maintained in winter at a figure in which it will be comfortable to read, or write, or lounge, and they insist that they shall also sit, as they list at the time, under the fragrant shade of a *Maréchal Niel*, a canopy of *Lapageria alba*, in a grove of *Camellias*, or a grove of tropical Palms or Tree Ferns. Now, one may walk with comfort in a temperature of 45° or 50°, but sitting in it in the chill damp of a glass structure in this country is out of the question. You must raise the mercury 10° or 15°, and then farewell to Roses, *Camellias*, and *Lapagerias*, more especially if a smoking-pan is forbidden, as an abomination, to come within the precincts of the building. Yet there are grand conservatories (save the mark) which are attempted to be managed in this way in which everything wears that woe-begone look so characteristic of the exotic in the wrong place.

"Where bug exists, dress the rods (Vines) with a pint of coal-tar (gas-tar) and six of water, clay, and hot lime; if this is followed up it will soon diminish the insects, &c." We should think so, and the Vines too. Hot this, very! Gardeners regard gas-tar much as a certain personage is popularly supposed to regard holy water. Vines smeared with gas-tar—and recommended in a "Practical Gardener" in cold blood! Wildsmith and Coleman to the rescue. What terrible conjunctions of *Phylloxera*, mealy bug, and other mortal enemies of the Vine could have led to

adoption of such measures, which are as inadmissible in gardening as old Lord Dundonald's "infernal gases" were in warfare? *Punch's* advice comes opportunely in a case like this—"Don't." A simple-minded gardener once acted on similar advice, and painted a fine wall of Peaches with a precious compost of a similarly harmless nature, and some two or three months afterwards was digging up his fine trees dead, and replacing them by others in great consternation of spirit, and breathing deep maledictions upon the concoctor of the recipe for destroying scale on Peaches.

Then in the matter of a compost for a Vine border it would undoubtedly be interesting to know why we should select 2 in. or 3 in. of the soil of an old pasture "according to the amount of fibre in the turves," and afterwards "store it away for twelve months fully exposed to the sun and weather" till the said essential fibre was all wasted, in order to turn it into "the best condition for use." Those who use fibry turf for Vines with an intelligent purpose use it because of the rich food set at liberty in the actual decomposition of the fibre and utilised by the Vines. There is no reason or sense in storing turf to waste previously for such purposes. The Vine border is the place where it should be stacked, and even there before the Vine roots can possibly make more than a limited use of it the fibre will be decayed. What is likely to become of the "fibre" that so much store is set by if we waste it for a whole year to no purpose, and after that have to wait a year or two till the Vines are established and in a condition to make use of it? Modern cultivators now turn the grassy sod into the Vinery at once, and plant their Vines in it. As well talk of exposing guano and other evanescent manures to the sun and weather previous to using as fibry turf that is wanted because of its fibre.

Whenever the farmer or the gardener alludes to insect, grub, or beetle scourges of his crop he is almost sure to be met by the response from some scientific "Jinkins" that all such plagues are the consequences of the disturbance of the "balance of Nature," and that he (the cultivator) is somehow or other largely responsible for upsetting the scales. Some of these wiseacres occasionally overshoot the mark, as, for example, when they tell us, as the editor of *Science Gossip* and author of the "Byepaths of Nature" does, when he predicts that if ever the Colorado beetle makes any progress in this country it will be because we have "too far disturbed the balance of life by killing the birds that kill the insects." It would be interesting to learn what natural counterpoise existed in this country to a beetle that had never inhabited it and was never anticipated. But that is not all; when the beetle first attacked the Potato patches in Colorado, the balance of power had not been sensibly compromised. The equilibrium was first upset by planting Potatoes there and furnishing greater facilities for the increase and spread of the beetle, and the way to restore the balance would have been to exterminate the Potatoes. Man erred by planting Potatoes in Colorado, and the same argument applies to numerous other plagues in this country.

The balance of life was evenly enough maintained when the ancient Briton carried his coracle on his back and lived on the flesh of the bos primigenus, wild deer, and boars, that bred just in proportion to his wants; but when his descendants took to growing Corn, Swedes, Mangolds, and Potatoes, the equilibrium was upset, and has been upset ever since. The way to reduce the Gooseberry caterpillar to the right proportion would be to discontinue growing Gooseberries, and the Turnip fly and Phylloxera, &c., might be combated in the same way. Should Gooseberry culture continue, it will become a question whether the gardener should be compelled to breed cuckoos to eat the caterpillars, or employ Hellebore powder; or whether he should breed bullfinches to clear his fruit tree buds of vermin, or kill the vermin himself. Some naturalists, who were examined before Parliament once, approved of the cuckoos and the finches, and thought it was part of the gardener's duties to hatch both.

One despairs of making some self-constituted "naturalists" understand what is palpable to every mole-catcher or poacher, viz., that a "balance of life," such as they dream of, cannot exist in a thickly-populated, highly-civilised, and much-cultivated country like ours. Possibly if all the birds were preserved that could be, they would do some good as well as much harm, but the farmer

and the gardener would have still to battle with the insect and other plagues that destroy his crops as heretofore. Such scourges are mainly the offspring of our extending and varied modern farming and gardening, and their prevention or destruction must necessarily become a question for the cultivator to deal with much as he deals with the subject of manures for his crops and other cultural matters.

PEREGRINE.

THE GARDEN FLORA.

PLATE CCLXXX.—THE AMERICAN CRAB.

(PYRUS CORONARIA.)

THIS handsome Crab is but one amongst a number of others equally ornamental. Its flowers, which are violet scented, are produced late in May, and even in June, and they continue in perfection for a considerable time. In habit it resembles the Apple, but its leaves, unlike those of its allies, are lobed. The fruit is round and flat and not edible in any condition; it falls while still green, and does not turn yellow till after it has been lying on the ground some time. There is a variety named *angustifolia*, which has narrower leaves, smaller fruit, and is more decidedly evergreen, but, nevertheless, it has a general close resemblance to the species under notice.

According to Case's "Botanical Index," this tree extends from near Lake Superior in British America to Louisiana. It is especially abundant in the highest of the Alleghany Mountains. It thrives in open places in cool soil which is deep and rich, though it is not uncommon in soil of moderate fertility. It varies in height from 15 ft. to 30 ft., according to soil and climate. The diameter of the trunk is 3 in. or 4 in., but in some cases it reaches 15 in. To a limited extent, the Crab Apple has been tried as a hedge plant. It is well adapted to a high northern latitude; is a very stiff grower, well covered with sharp spines; grows faster than Hawthorn; is hardy and not liable to disease. When in flower, the display is very fine, filling the air with a delightful perfume. The thorns, rough bark, crooked limbs, and rather open top give the tree a rather picturesque appearance. Perhaps these may be some of the reasons why it is not much used in this country as an ornamental tree, though it has long been considered one of the prettiest flowering shrubs in England.

Before proceeding to note a few of the other species of Crab, it seems desirable to point out that our ordinary fruit trees should not be confined solely to the orchard or kitchen garden; on the contrary, they should occupy conspicuous positions on the lawn or in shrubberies in which both the Apple and Pear might be used with good effect. All the former requires is a little care in the selection of its position and surroundings, while the latter, possessing a habit which more readily harmonises with that of other trees, is capable of general adaptation. An old Crab tree in full flower is a sight that will delight any artist. No less ornamental is the Siberian Crab, which in Knight's hands was one of the parents of some of the finest Apples raised by him at Downton. Some of these Crabs are by no means useless as fruit trees, though now the fruit has but a limited use. In Shakespeare's time roasted Crabs was a favourite dish, and that not owing to the absence of improved varieties, but preference of taste.

Pyrus Malus floribunda is one of the finest flowering shrubs we have. Its branches are widely spread, and form wreaths of coral-red buds, which expand into paler coloured flowers. Its habit is good, and perhaps more graceful than that of the Crabs now under consideration; it associates well with other shrubs, and is most useful, even from the smallest state to the size of a dwarf tree. A more perfectly hardy shrub one cannot possess, and one more profuse as regards blossom could not be named. It was introduced from Japan some years ago, but until comparatively recently it seems to have been little known. A coloured plate of it was given in *THE GARDEN* of October 14, 1876.

Pyrus spectabilis is another species possessing great beauty, and, like the last, indispensable; it grows somewhat erect, and shows itself off to advantage when planted singly on Grass. Its flowers, which are large and semi-double, are of pale rose colour, but before expansion the buds are deep red. The stamens and pistils are unusually numerous, the former sometimes exceeding 40,

and the latter 20. This was considered by London to be the most showy of the genus. It was introduced from China about 100 years ago, and reaches from 20 ft. to 30 ft. in height.

Pyrus salicifolia.—This, though extremely distinct in appearance, can only be considered to be a variety of the Pear. It reminds one of the Silver Tree of South Africa (*Leucodendron argenteum*), so thickly are its leaves clothed with white, woolly hairs. Its habit is inclined to be pendulous, and among other trees, especially those of dark appearance, it is remarkably striking, especially when covered with white flowers. The leaves are narrow and Willow-like. It is a native of Siberia, and is occasionally found in gardens. In the Cambridge Botanic Garden there is a fine example of it.

The Mountain Ash or Rowan Tree (*P. Aucuparia*) must not be overlooked, on account of its berries. It is equally handsome by the mountain stream, backed up by rocks, and in the garden, where it thrives almost under all circumstances, and produces heavy masses of fruit. Being a rapid-growing tree, it is valuable as a nurse and for coppices.

Mespilus and Cydonia, too, are now brought under the genus *Pyrus*. Of the former we know few prettier trees of small size for a lawn than *M. grandiflora*, the large white flowers of which are produced in great abundance. In habit the tree resembles a *Cratægus*. Its native country is unknown. *Cydonia japonica* is too well known to need description, but whether as a bush or against a wall, it is one of the most desirable of shrubs. There is a variety with Peach-coloured flowers; and the finest white is probably that recently introduced by the Messrs. Veitch, and named *nivalis*. We have only now to mention the handsome-fruited *Cydonia* or *Pyrus Maulei*, figured and described in *THE GARDEN*, Vol. XIII., p. 390. It was introduced by Messrs. Maule, of Bristol, and is one of the finest flowering and fruiting shrubs in cultivation.

R. I. L.

SINGULAR VEGETABLE FORMS OF THE ROCKY MOUNTAINS.

OUR valleys offer rich soils for horticulture; our mountains yield minerals, metals, and chemicals, as well as choice timber, flowers delightful and fragrant, Nuts, fruits; and even the arid plains and deserts produce a new world of the strange, the useful and lovely, and altogether they are a study of the grandest magnificence beyond the power of pen to paint. A person passing over our deserts is impressed with the utter desolation around, the vast distance, the burning sand, absence of moisture, the thorny, leafless Cacti, Agaves, Yuccas, and starveling, stunted shrubs. It would seem to the unpractical mind that were a person lost upon these desert plains, a rescue from death would be hopeless; and yet these ugly Cacti are composed of three-fourths water, the sere shrubs bear a delicious berry, the Spiny Yucca bears an edible fruit resembling a Banana. The Cacti produce a fruit often delicious, and the Agave bulb, when properly roasted, gives a sugary, nutritious food. The *Cereus gigantea* often rears its lead 20 ft. or 30 ft. straight or with projecting arms like a mighty giant guarding the treasures of the lone desert or the passes in the mountains. The *Yucca brevifolia* or Needle Palm is another magnificent specimen, rising from 10 ft. to 20 ft., often with umbrageous head, and the numerous limbs giving terminal masses of cream-coloured bloom, sometimes weighing fifteen to twenty pounds; the seed formed in a dry capsule, fruit size of a Peach. This fruit in Northern Mexico and Arizona is called *sotol*, and is used quite extensively as an article of food. The tree-like body of the plant, which is often 20 in. to 24 in. in diameter, is composed of a thin, gauzy network of tough filament, valuable as a paper material. Another interesting plant is *Yucca angustifolia*, the true Spanish Bayonet of frontiersmen, which takes the place, in general form and appearance at least, west of the Mississippi River, of the common eastern species, *Yucca filamentosa*, which is found from the Mississippi River east, usually in poor ground. One form, we are told by Dr. Engelman, has a large geographical range, reaching from Southern Utah to Central America, and it also assumes quite a variety of forms, but he says, "they are always easily recognised by their never constricted obtuse capsules (fruit), and the large broad-margined seed, nearly $\frac{1}{4}$ in. broad. The true *Yucca angustifolia* is a low-growing or stemless species with leaves from 12 in. to 15 in.

long and from $1\frac{1}{2}$ in. to $2\frac{1}{2}$ in. wide, all growing from a common centre, and pointing in every conceivable direction, so as to form a pyramid that bids defiance to man or beast. Two other varieties of *Yucca angustifolia*, which Dr. Engelman has named *elata*, from Arizona, grows several ft. high, and *radiosa* also grows several ft. high. The leaves are linear, stiff, and end with a sharp-pointed spine. The flowers are a greenish-white, and produced on stems about 4 ft. or 5 ft. high, while the fleshy edible fruit is often 3 in. long and $\frac{1}{2}$ in. across. The leaves are thick, stout, about $3\frac{1}{2}$ in. long and $\frac{1}{4}$ in. broad, and not narrowed above the base as in most other species, but gradually narrowing down to a sharp spike-like point. It is margined its entire length with sharp serrated edges, and are thickly set in a crowded bunch at the ends of the branches.



Yucca brevifolia.

They are also fibrous and from the edges are a few thread-like filaments hanging, the whole of which is also a valuable paper material. Other species of *Yucca* also belong to this region, but they are of less importance than those just referred to.—*Case's Botanical Index.*

Snowdrops and Crocuses for Forcing.—It seems to me that, as Mr. Fish quaintly describes it in his useful work "Bulbs and Bulb Culture," the Snowdrop resents any attempt at forcing. If it is to be done at all, the bulbs must be persuaded that nothing of the sort is intended, and if the deception is well carried out they may, I believe, be made to bloom earlier than usual. My experience this year has been very much in favour of this unpleasant "incompatibility of temper" on the part of this pretty, but petulant bulb. I potted several half-dozens of strong sound bulbs, and plunged them in the most orthodox and "unforcemanlike" manner. I then took some pots up when the bulbs were apparently well rooted, and plunged them in the gentlest bottom-heat, and they began to force most conveniently; but suddenly, it seemed to me, one bulb caught a suspicion that it was being forced, and rotted away at once; in his dying moment, I presume, he communicated the intelligence to the rest, and they followed the same course, I consider, "out of sheer aggravation." I took out the pots and put them away, thinking their contents were dead, under a bench till the pots should be wanted, and *mirabile dictu!* one or two bulbs, which had not had time to rot, perked up. I caught them in the nick of time, when it was too late for them to retrace their steps, put them on a shelf in the greenhouse, and they flowered three weeks before any others, potted or in the open ground. —GIROFLE.

THE FRUIT GARDEN.

FRUIT CULTURE FOR PROFIT.

Stone Fruits.

The Apricot.—All stone fruits do best in a deep friable loam of a calcareous character on a dry bottom; and, so far as regards Apricots and Peaches, the protection of a wall is absolutely necessary in our climate. I have seen both fruits just named planted out as standards in several different situations, but the result in every instance has been unsatisfactory. Even the protection of a wall alone does not insure success; other means must be employed to shelter the trees from cold winds and the destroying effect of a low temperature when they are in blossom. The delicate white petals which surround the embryo fruit of the Apricot are more sensitive to cold than the pink flowers of the Peach, and as they generally expand earlier they have more dangers to encounter. I have often seen Apricots trained against a cottage or a barn, or some other out-building, more fertile and healthy than trees growing in the same neighbourhood against a garden wall. Garden walls are often damp, especially where the coping is narrow, or perhaps has been allowed to get out of order, and so let in the wet, and trees trained to a damp surface never seem to thrive well, and are frequently infested with Moss, and more subject to insect attacks than when the wall has been kept in good repair. If walls must continue to be built bricks form the best material for them, and they should have a substantial stone coping, projecting not less than 3 in. on each side. There is, however, a growing feeling among cultivators that large walled-in enclosures for the cultivation of fruits and vegetables are a mistake; and though I should not go so far as to recommend their removal where they now exist, yet in the case of new gardens I certainly think some of the money spent upon wall building would be better and more economically employed in the erection of plain substantial glasshouses for Apricots, Peaches, Plums, and a few of the choicest late Pears. So far as regards the commoner kinds of fruit and vegetables, better results are obtained in open fields than can be had in walled-in gardens and at a much less cost. For an establishment that has hitherto required a walled-in enclosure some six or eight acres in extent, one-third or fourth of the space would suffice, and this should be chiefly devoted to forcing houses, early vegetables, and salads. The walls should be planted with a few Apricots, Peaches, Plums, Cherries, and choice late Pears, that are not quite reliable as espaliers or pyramids. In many gardens there is more wall space than can be well attended to. To keep wall trees in good order the work is incessant both winter and summer. And too often one or two frosty nights in spring or two or three hours of cold east wind destroy a year's attention. Where walls exist, however, the best aspects should be devoted to the better class of fruits, and though spring frosts and the absence of sunshine in summer destroy the blossoms, yet in the well management of the roots we have a powerful means of mitigating unfavourable climatic influences. Fruit trees with abundance of healthy roots are not much injured by ungenial seasons; they soon outgrow the withering effects of a cold spring, and their growth being healthier their blossoms are more robust and more capable of standing hardship, and will often even produce a crop when trees less well cared for are barren.

Preparation of the Border.—The first necessity as regards borders is perfect drainage, and even land naturally dry will in a wet season, or during winter, sometimes contain too much moisture for fruit trees; therefore, unless we are quite sure about our position a drain should be run along the front of all wall borders, and have a proper outlet either outside the garden or into a main drain nearer. The second requisite is good soil, such as can be pretty nearly always obtained if the importance of the matter be insisted on. The top spit, 4 in. or so deep, from a common or any position where Grass has long grown upon it, and been fed off by sheep or other animals, will suit all kinds of fruit trees. If it is not of a calcareous character, some old mortar or debris from old buildings may be added for stone fruits, as lime is essential for their well doing. The width of the border should be in proportion to the height of the wall; a 10-ft. wall, for example, should have a 10-ft. border. If we really want to do things well, and to do so is the best and cheapest course in the long run, whenever the subsoil is unsuitable for the roots to penetrate—and deep rooting is an evil even where the subsoil is not really bad—the bottom of the border

should be pared or covered with concrete. It is a common practice in some places to plant on a heap of stones, but if a good drain is run along the front of the border, and the bottom is paved or concreted at a sufficient inclination to throw the water to the drain, there should be no necessity for planting on stone heaps, which in hot summers dry the immediate neighbourhood of the tree too much. The depth of the border may vary from 2 ft. to 3 ft.; in dry, porous districts the latter depth will not be too much, whilst on retentive soils 2 ft. will suffice. The site of the border should be excavated to the required depth and all inferior soil removed; 4 in. in thickness of lime and gravel concrete should be placed on the bottom and made even and firm, inclining to the front. It need not extend quite all across the border; two-thirds of the distance will be sufficient to give the roots the necessary horizontal direction; and if at any time the feeding extremities should get too deep, they can easily be sought for and brought back. In this matter of border making I intend all I have written here to apply to stone fruits generally. It may not be so urgent in the case of some of the hardier Plums and Cherries, but all who aim at doing things in the best possible manner whenever the subsoil is bad should not begrudge the expense thus incurred. Certain I am, if more pains were taken with the roots of wall trees, they would not be so unsatisfactory, as in too many instances they are. The borders might be prepared in lengths of 50 ft. or so at a time, and as soon as the foundation has had time to settle and get firm, the good soil, if any, from the next section may be run on, and so on all round the garden, bringing in the new turfy soil when all is completed to make the border up to the proper height, then all should be turned over and intermixed. This work will be best done, say in August or September, and left to settle till November, when the trees should be planted.

The Selection of Trees and the kind of training adopted are most important matters. And I say the same with reference to stone fruits as I have done in the case of Pears. Where the climate and position are suitable to carry the trees on to a good old age and fertility is maintained to the end, then try to get up large spreading trees and plant at wide intervals apart for that purpose. But how few are the places now-a-days where large trees are healthy and perfect in outline. How rarely do we find the Apricot wall well furnished. As all stone fruits bear well in a comparatively small state, I should plant them much nearer together than is commonly done. If any particular tree displays unusual strength and vigour, it is an easy matter to remove a neighbour on each side and give it room for extension. Suppose we have a wall, or portion of a wall, 100 ft. long and 12 ft. high to plant with Apricots, and the different fruits should always be grouped together in families if possible, I should recommend ten trees to be planted, which would give 10 ft. for each tree. At the end of half-a-dozen years the weakest trees could be removed and the others re-arranged, so as to occupy the whole space. The fan system of training is that most in favour with cultivators, as it permits blanks to be easily filled up; but stone fruits may be trained in any desired form and in all situations; where the trees are short-lived that system of training is the best which covers the wall with fruit-bearing trees in the shortest time. To do this well thick planting and frequent transplanting is the proper course to adopt. If the wall exceeds 12 ft. in height dwarf trees and standards, or riders as they are commonly termed, should be planted alternately, so as to cover the top and the bottom of the wall at the same time. In the selection of the trees none but those with clean, stout, healthy stems should be planted. A weakly, diseased stock soon succumbs, and if the union is not perfect the tree cannot be long lived. Healthy maiden or one-year worked trees generally turn out well if they are fairly developed both in root and branch; if otherwise, then plant trees two years worked or one year trained. They should be cut back just as the buds are bursting to four, six, or more eyes, according to their strength, but after the first year there should be no necessity, if well managed, for cutting back beyond removing unripe points. It adds to the strength of weakly trees to cut back close, as it confines the force of the tree to few outlets, to which the sap sent up by the roots rushes with greater force, and produces stronger wood; but this is a tendency that, after the first year, should be discouraged, as moderately strong short-jointed wood is best for fruit bearing. As soon as the trees are planted a decision should be arrived at as to the

Mode of Bearing—whether the fruit should be borne on natural spurs on the young wood of the previous year, or whether artificial spurs should be encouraged. The common practice is, in the case of the Apricot and Plum, to take the crop indiscriminately from the young wood as in the case of the Peach, and also to create by pruning a number of artificial spurs on the face of the branches. Both systems have their advocates, but in the case of the Moor Park Apricot, which is everywhere so largely grown, the former plan seems to give the best results. As that variety bears so freely on the young wood in favourable seasons, there is always plenty of blossom. It should be borne in mind, too, that if the blossoms are clustered along the young wood there is less danger of injury from frost, as they lie close to the wall and receive all the shelter possible from its dry, warm surface. I have often noticed in bad fruit seasons, when the blossoms have been sadly thinned by the inclemency of the weather, that in nearly all cases those that remain owe their escape mainly to their contiguity to the wall. A brick wall during the day, if there is any sunshine, absorbs heat, which it gives off again at night, and this accounts for the safety of the fruits lying close to its face, while others on spurs several inches off perish. In commencing the training of a young Moor Park Apricot, if we decide it shall carry its crop on the young wood, we must begin disbudding early by removing all foreright shoots first, when they are not more than 1 in. long and can be rubbed off with the thumb and finger without leaving any scar or wound. In all matters in connection with the management of Apricot trees, which are especially liable to gum and canker if exposed to injury, great care should be exercised that the bark be not injured, either by the careless use of the knife or in the training of the branches. Where nails and shreds are employed, trees are often injured by driving the nails too near the branches, or by a careless use of the hammer, or by drawing the shreds too tightly, or in various other ways. Disbudding should be done gradually, leaving the best placed shoots for bearing the fruit, and always endeavour to secure one at the base of the previous year's shoots, and as many more on the side as there is room without overcrowding, which should be specially guarded against, for it leads to the production of small weakly foliage and badly-ripened wood. Under this mode of training all the pruning that will be necessary, if the disbudding in spring has been properly attended to, will be thinning out the branches that have borne fruit in the summer previous. Some cultivators recommend this to be removed in autumn, and though it doubtless does give more room and tend to concentrate the force of the tree upon the remaining buds in a greater degree, yet to insure this to the fullest extent it should be done before the leaves fall, so that their action may help to heal the wounds before the approach of winter. When this is done there will be no pruning to do beyond shortening back a weakly shoot, when the annual training and dressing takes place, just before the blossoms expand. It is always a good plan, even where artificial spurs are encouraged, to lay in as much young wood as there is space for; it infuses new life into the tree, and though the young wood close to the wall generally bears the most fruit in a bad season, yet the mixed system of cropping has its advantages, for though the spurs often fail to retain their crop yet they greatly help to shelter the blossoms of the young branches; however, this is only a negative kind of benefit, and seems to imply neglect in not affording sufficient shelter by other means. I need hardly say that during the summer all young wood reserved for training on all fruit trees should, as its growth extends, be carefully secured to the wall.

E. HOBDAY.

OPEN-AIR VINE CULTIVATION.

It is a good sign to find such a writer as Mr. Hobday advocating the revival of the cultivation of out-of-door Grapes *versus* Grapes under glass. We need not despair of seeing the possessor of a country home, or even a town one, sitting under his own Fig or Vine and enjoying their delicious fruits. Perhaps such a pleasurable condition of existence could be made to arrive at an earlier date if our instructors in these matters would not hamper their directions with unnecessary and costly preparatory work. For instance, does a Vine, to grow it well, require a border of maiden loam of the depth of 4 ft.? if it does so in England, it rarely gets such a depth of soil in those parts of Europe that produce the finest wine, and the Grapes richest in aroma and saccharine matter. I am well acquainted with Vineyards in parts

of Austria and Hungary in which wine is grown as good, and some kinds excelling, the famous products of France and the Rhineland, and whose ripe Grapes find their way in hundreds of cwt. to all the great centres of population in Northern Europe, and I can assure your readers that these Vines are growing, in the generality of cases, in earth which a gardener would designate as anything but good, such as sandy or gravelly loam, the debris of granite or limestone rocks, the natural "gerolle," or deposit of stone and earth brought by the influence of rain and wind from the region just above them. Of course, in places favourable to its deposition, earth of considerable depth may be found, but it is oftener very shallow, and must be kept from being carried lower down the slope by small terrace walls of rough stones or turf. Manure is not often afforded, and never over the whole surface of a Vineyard at one time; but as plants die out or become exhausted others are layered from neighbouring healthy plants, to fill up the gaps, manure being given at the same time. As this filling-up in Vineyards of fifteen years old and upwards is continuous over the whole of the surface, so also is the manuring; it may happen, if many losses occur, that the field has been manured completely in the course of six years. No one can say that that is even moderately manuring; still, the results, if the other management be equal, are very good; and were it not for losses from frost in the blooming period, the growers would be rich people with but few exceptions.

The Vines, except in the case of rare varieties, are never propagated from eyes, but from cuttings of about 1½ ft. in length. This length of wood places the best part of the roots, namely, that which springs from the callus, out of the reach of frost and beyond the damaging effects of drought, so that the ordinary vicissitudes of the weather have no effect on its roots, although it sometimes happens that the part above the ground is killed by severe frost. May not this long cutting be of advantage in England as well? Possibly some persons will suppose that the roots will be too deep in the earth for our cooler climate, but I premise the roots of Vines grown from eyes penetrate as deeply as those from long cuttings, but the callosity stands higher, and therefore is exposed to more chances of damage from climatic influences. As regards warmth here, we may assume that our walls, having a south aspect, are quite as roasting as a free lying hillside in the wine producing lands of Europe, and then, in our climate, the days are considerably longer, and that must be reckoned as a compensating factor. The cuttings are prepared in winter, and are not allowed to become frozen; in the spring they are tied in bundles of about a hundred each and then laid in sandy ground, with their tops buried to the depth of 1 ft., the butt-ends of the bundle of cuttings lying at an angle of 45° to the sun—that is to the south. The butt-ends are then covered slightly by layers of Moss and fine sand, which is kept fairly moist by being sprinkled daily with a watering-can. In a short time the callus forms, the rootlets soon follow, and the cutting is now in a proper state to be planted out. This operation requires care, so that no part of the budding rootlets gets broken off, the young plant being inserted to the depth of 1 ft. The ground should have been trenched to a depth of 2½ ft. or 3 ft., and drained if waterlogged or from its situation likely to be excessively moist, the manure given being placed under the plant and not above it, as that has a tendency to produce superficial rooting, which in itself is a decided disadvantage in very hot quarters. In cold aspects I would recommend shallow placed roots, but then you should not plant the Vine there. In planting against walls the distance from plant to plant may be 3 ft., it being better to have a number of plants and variety than to risk the chances of success on a few at wide distances apart. From plants managed on the long rod system twelve to fifteen bunches per plant would not be too much. Thinning the bunches would in some cases be required and sometimes the berries, although, except in very favourable blooming seasons, that would be uncalled for.

I think excessive manuring should be avoided, as being productive of gross wood only, and that is usually difficult to ripen off thoroughly in our usual summers. Our object should be rather to get well ripened, if wiry wood, with good plump base-buds to look to, for the next season's crop. As a means to the attainment of this object, the removal of tendrils, weak side growths, and the encouragement of the best leaf growth should receive constant attention. The Vine under natural conditions of culture rarely suffers from want of water, therefore under our dripping skies

the direction as to watering may quite safely be passed over, as an unnecessary as well as a costly piece of work. I have had Vines on espalier fences planted due south show no sign of suffering after a quarter of a year, under a burning summer sun, without rain or any artificial watering. This is proof of its capability of enduring heat and dryness combined without injury then or later. The sorts of early ripening qualities, are those which one should plant most generally—the Chasselas or Sweetwaters, Frontignan; Red, Black, and White Burgundy; Muscatelle (Black and White) Veltliner and Rhein Riessling, the yellow Orleans; these would afford variety in colour, flavour, and time of ripening. All of these sorts named are good keepers after being cut, and, with the exception of the somewhat flavourless Sweetwaters, make capital wine, the last two being used to make a rather fiery sort of white wine, that keeps well and possesses a fine aroma.

I have made experiments with Muscats, Pince's Black, and Muscat Hamburgh on espaliers, but they never became in any season quite palatable; therefore, even less might be expected from them in any part of England. The Isabella Vine is to be highly recommended for its rampant growth as an arbour or arcade climber, but its fruit, although rather handsome, is generally disliked, because of its sliminess and peculiar flavour. As a stock on which to graft other or weaker sorts it has undoubted advantages. The above remarks on the Vine may help to dispel some doubts that would-be cultivators may have in reference to their ability to produce Grapes out-of-doors in sunny aspects anywhere in England south of the Humber or on heated walls, even north of that point.

To recapitulate some of the more important points, I may say that the Vine is not very difficult to suit in the matter of soil, any tolerably open garden earth naturally or artificially drained being good enough, that no great outlay in manure is required, nor is much or any watering requisite. If the soil is shallow and the subsoil of bad quality, an impervious bottom must be made in imitation of the rocky bottom existing under many Vineyards.

That the Vines should be from cuttings or layers, as a shield against injury from drought or frost, and the pruning and summer manipulation such as is generally recommended by writers on the Vine; that the crop is a paying one does not admit of any doubt; and that the supply will ever exceed the demand for home-grown fruit need not be feared in our day. Still, the production of early sorts by means of hybridisation as practised so successfully by the American growers may be the means of bringing the Grape still more into notice as a cheap market fruit for the masses, so that the money we give the Spaniards for their leathery Almerias would remain in the pockets of our people at home.

SYLVESTRIS.

FRUIT GROWING MADE EASY.

THE first consideration with intending fruit growers should be the site for the plantation or orchard, because an injudicious selection in that matter is more than likely to entail failure and consequently disappointment. Other things being equal, the one who has made a wise choice in this particular may expect to succeed in growing fruit even in critical seasons, whilst the other who has not done so will find to his cost that the inclement weather, of which we have had such unwelcome experience some years past, which occurs towards the end of April and during May will work such sad havoc in his plantations and orchards, that many of the trees will produce, comparatively speaking, little beside leaves. If a piece of ground be at hand which lies high, and has a gentle slope towards the south or south-east, that will be a favourable position for fruit culture; if to this be added a soil adapted to the kind of fruit trees sought to be grown, there must be little fear of a fair degree of success. It is a known fact, although possibly not so generally understood as it should be, that frosts are more biting in valleys than upon hills; vegetation therefore is far more likely to suffer in the former than upon the latter, the reason undoubtedly being attributable to excess of moisture in the air in valleys, frost being certain to lay hold of anything damp more firmly than anything dry. Its effects upon freshly dug or ploughed land are much more readily discernible than upon solid ground in dry weather, a fact which illustrates in a measure what has just been stated. Again, land lying high with an aspect such as I have indicated secures the early morning sun when its rays are but feeble, so that the frost disappears in such a gradual manner that its effects are not nearly so injurious as is the case where, owing to the configuration of the ground, the sun is not seen

nor its heat felt till some hours later in the day; in this case it darts its rays, which possibly are some 20° or 30° hotter than when it rose upon the rimy frost still clinging to the trees and embryo fruit, with disastrous effect upon the latter, the results of which may be seen soon afterwards in the little Currant bunches just forming, and the tiny Gooseberries hanging withered and lifeless. From the above, readers of THE GARDEN will at once detect the advantages which fruit trees would possess in a valley running east and west over those planted in one running north and south if, owing to circumstances, they had not a piece of high-lying ground at disposal. As to the question of soil and its preparation for fruit trees, that may be treated of hereafter.

AGRICOLA.

Renovating Peaches.—When Peach trees get into such a condition that it is necessary to consider whether they are worth retention or not it is certain they need some drastic remedy. Some trees of perhaps fifteen or sixteen years' planting I found in that condition, and in such a state that nine gardeners out of ten would have advised their being rooted out, a fresh border made, and replanted with new trees; I ventured to suggest that they should have the saw boldly applied, and be cut back to within 2 ft. of the ground. This was done, and the next spring the stumps broke well and that season plenty of good wood was made, but indifferently ripened; that, however, was the fault of the season. Last year fresh and vigorous growth was made, but not such long and rank growth as is usually seen on two-year planted trees in deep, highly-manured soil; the growth was stout, and became full of buds. Now the trees are full of bloom buds just expanding, the wood hard, well seasoned, and the bloom strong and healthy. I think there will be a fine crop of fruit, always provided that sharp frosts do not prevail, but these, I hold, are not so destructive to the bloom of trees where the wood is hard and well ripened as where such excessive sappy growth has been encouraged. That the trees in question had not suffered in the roots is evident; their state previously was entirely due to indifferent management, or rather the lack of management at all. Since the hard cutting no manure or special culture has been given to the borders, but then they have only light crops taken from them. What health the trees now exhibit would seem to be as much due to the absence of stimulus and gross culture as to any other cause. Perhaps some of the reasons of the comparatively short life of our wall trees, stone fruits especially, is the excessively stimulating root culture given them.—A. D.

SEASONABLE WORK.

Figs.—Early kinds started in November will soon be swelling for ripening and as this is a critical time, see that checks of all kinds are carefully guarded against. In order to ensure flavour, give more air and decrease the supply of atmospheric moisture, particularly by night or on dull days, when the house is closed. Keep the roots of trees in pots well supplied with water, as anything approaching dryness will most likely cause them to cast their fruit at the eleventh hour, when a winter's forcing will end in disappointment. In my own management of pot Figs, I make little, if any, reduction in the supply of water, as we always soak the roots and syringe the tops thoroughly immediately after the ripe fruit is gathered. Give pot trees good warm liquid for the present and syringe twice a day when external conditions favour the fruit and foliage becoming dry before nightfall. Let the night temperature range from 60° to 65° when mild, run up to 75° by day, and 5° to 10° higher after closing with sun heat. Regulate and thin the shoots, as good flavoured Figs cannot be had without free admission of light and air.

Peaches.—With the exception of a slight increase in the temperature after closing on bright afternoons, no alteration in the treatment of the early house will be needed until after the fruit is stoned, when, if wanted very early, a higher range may be taken; but it is not advisable to place stone fruit trees under hard pressure, as early maturity is obtained at the expense of size and quality, and it is difficult to imagine anything more insipid than an over-forced Peach. Good syringing twice a day is very important, and timely ventilation to prevent a sudden rise in the temperature must not be overlooked. See that next year's bearing wood is neatly tied in to the trellis, pinch gross shoots to maintain the balance of the sap, and defer the final thinning of the fruit for the present.

Grape Room.—The dry atmosphere which prevailed throughout the past month was favourable to the keeping of late Grapes in rooms not affected by sudden changes of temperature, and such kinds as Gros Colmar and Alnwick Seedling are still fresh and plump. The last named being the first to break in the spring, and the first to ripen when grown with such varieties as Lady Downes, Alicante, and Mrs. Pince, and its quality being so good, the proof that it is a good keeper will at once stamp it as one of our best spring Grapes. It will now be necessary to keep the room as cool as possible, by admitting a constant circulation of air and keeping the shutters closed all day, as light and sun heat will begin to have an injurious effect upon the colour and texture of the berries. Keep the bottles well filled, remove all decaying berries, and keep down dust by occasionally washing the floors with warm water in fine weather.

Cherries.—When the fruit in the early house is set, daily syringing must be resumed and continued until the stoning process is complete. In the meantime the stopping of superfluous shoots to form spurs, and the tying-in of others where young wood is needed, must have attention. As days increase in length and the sun gains power, the temperature with a circulation of air may range from 50° to 60°, and a few degrees higher after closing with solar heat; but it will not be well to make much advance on the minimum temperatures given the other day, say 45° at night, unless the weather is very mild, when 50° or perhaps more may be maintained without having recourse to fire-heat. Keep all insects in check by

timely application of the usual remedies. See that the roots are well supplied with water, and have the surface well mulched to prevent the escape of moisture when the fruit begins to ripen.

W. COLEMAN.

THE LIBRARY.

SUCCESS WITH SMALL FRUITS.*

THIS is one of the most curious books that have been published on horticulture for some time past. It concerns the small fruits cultivated in North America, and is beautifully illustrated; the illustrations are not, however, so well printed as they were in *Scribner's Magazine*, nor is the paper and printing generally so good as it ought to be for such fine cuts, but still high-class. No doubt the



The Fruit Gatherers.

numerous and fine engravings owe their origin more to the fact that the proprietors of *Scribner* wished for a number of choice illustrations than to anything the subject required in itself. The cuts concern not only the fruits themselves and the mode of cultivating them, &c.; a great many are devoted to the work-people and such picturesque aspects of life on a fruit farm in a fine country as the artist fancied. Although we, too, live in the northern world, few of the fruits described in the book have as yet much interest for the British cultivator, except that he must be struck with the remarkable effect of the creation of many of those fruits within the period of a generation or two. That men should select and develop whole races of fruits like the American Blackberries within a generation or two is a very curious and instructive fact. It is not possible that among these fruits there may not be some of

interest to the English cultivator; but, up to the present time, nobody on our side of the water appears to have taken any trouble to understand or select from them. The same may almost be said of our own British wild Blackberries. Even among those who know small fruits few know of any kind beyond the common one, whereas there are many with, no doubt, infinite capacities for improvement. Even as they are, some are far before the common Blackberry which we all know. The American cultivated Blackberry is much larger than anything known in this country, and is a really delicate, wholesome fruit. Our Strawberries seem to be useless in America, though some one is reported to have gathered an enormous crop from Jucunda. The British Queen is put down as tender and useless. Raising Strawberries seems to have had an immense development of recent years—Hovey's Seedling still remaining in cultivation, however, near Boston, though it has many rivals. Grapes are among the small fruits in this volume, their culture having received a great impetus during recent years, and many varieties having been raised. It is a hard task to change the poor little "foxy" native berries into *Grapes*, but we have no doubt that it will be done. The author of this book very properly does not see why such a subject should not be treated from other points of view than the cultivator's, or from that of the money-bag, and it must be allowed that he has succeeded in adding the charms of novelty and good artistic work to his volume—a book, he says:—

A book should be judged somewhat in view of what it attempts. One of the chief objects of this little volume is to lure men and women back to their original calling, that of gardening. I am decidedly under the impression that Eve helped Adam, especially as the sun declined. I am sure that they had small fruits for breakfast, dinner, and supper, and would not be at all surprised if they ate some between meals. Even we poor mortals who have sinned more than once, and must give our minds to the effort not to appear unnatural in many hideous styles of dress, can fare as well. The Adams and Eves of every generation can have an Eden if they wish. Indeed, I know of many instances in which Eve creates a beautiful and fruitful garden without any help from Adam.

The theologians show that we have inherited much evil from our first parents, but, in the general disposition to have a garden, can we not recognise a redeeming ancestral trait? I would like to contribute my little share towards increasing this tendency, believing that as humanity goes back to its first occupation it may also acquire some of the primal gardener's characteristics before he listened to temptation and ceased to be even a gentleman. When he brutally blamed the woman, it was time he was turned out of Eden. All the best things of the garden suggest refinement and courtesy. Nature might have contented herself with producing seeds only, but she accompanies the prosaic action with fragrant flowers and delicious fruit. It would be well to remember this in the ordinary courtesies of life.

It is difficult to find anything that will interest our practical readers, the conditions of culture and of climate are so different; but the following maxims have a more general application:—

1. Never put off till spring work that might be done in the fall. Spring is always too short for the labour it brings, even when not wet and late.

2. Plough in the fall all heavy, loamy land that you intend to plant in spring. This exposes it to the action of frost, and, if done late, tends to destroy insects and their larvæ. Do not plough sand in the fall unless there is upon it sod, stubble, &c., that is to decay.

3. Top-dress very light land with 1 in. or 2 in. of clay or heavy loam in November, and let the winter frosts and rains blend the two diverse soils to their mutual advantage. Harrowing in fertilisers on light ground is better than ploughing them in.

4. In the fall, top-dress all the small fruits with compost, bone-dust, or other fertilisers that have staying powers, spreading it along close to the rows and over the roots, and working it into the soil lightly by cultivation. This gives everything a vigorous start in the spring.

5. If possible, take out before winter all perennial weeds—Sorrel, white Clover, &c., but do not greatly disturb the roots of Strawberries just on the approach of winter.

6. In most localities and soils, Raspberries, Currants, Gooseberries, and Blackberries do better if planted any time after they drop their foliage in the fall. Such planting can be continued even into the winter on mild, still days, when frost is neither in the air nor soil. Frozen earth should never come in contact with roots. I plant Strawberries, also, all through the autumn, even into December; and, before the ground freezes, hoe upon them 1 in. or 2 in. of soil, raking it off as soon as freezing weather is over in the spring.

* "Success with Small Fruits." By E. P. Roe. London: Seeley, Jackson, & Halliday, 54, Fleet Street.

7. The earlier plants are set out in spring the better, if the ground and weather are suitable. It is usually best to wait till the danger of severe frost is over. Do not plant when the ground is wet and sticky, or dry and lumpy, at any season, if it can be helped. Do not plant in a high, hot, or cold wind. Make the most of mild, still, and cloudy days. If plants can be set before a storm or shower, much is gained; but this is not essential if roots are embedded their whole length in moist (not wet) earth, and the soil made very firm around them. Plantings may be made in very dry weather if the land is forked or ploughed late in the afternoon, and the plants set immediately in the fresh, moist earth. Keep the roots from contact with unfermented manure.

8. In handling plants at any time, *never* let the *little* rootlets dry and shrivel. Keep them from sun, frost, and wind. If the roots of plants received in boxes are frozen, let them thaw out in a cellar undisturbed. If roots are black, shrivelled, or musty from long transportation, wash them in clean water, and, in the case of Strawberries, shorten them one-third, and then plant at once in moist soil.

9. In cultivating Strawberry plants recently set, stir the surface merely, with a rake, *not over* $\frac{1}{2}$ in. deep.

10. Never disturb roots by working deeply among them in dry weather. At such times, stir the *surface only*, and *often*.

11. If you water at all, water thoroughly, and keep the soil moist till rain comes, otherwise watering is an injury.

12. The easiest and cheapest way to keep a garden clean is to rake the ground over once a week on sunny days. This method destroys the weeds when they are just appearing, and maintains moisture.

13. Pick fruit, if possible, when it is dry, and before it is over-ripe. Do not leave it in the sun or wind, but take it at once to coolness and shade. Pack carefully and honestly. A quart of small, decayed, green, or muddy berries scattered through a crate of fine fruit may reduce its price one-half.

14. Mulch everything you can. Save all the leaves and litter that can be gathered on the place, and apply it around the plants only when the ground is moist. *Dry* ground covered with mulch may be kept dry all summer.

15. Practise summer pinching and pruning only when plants are in their spring and early summer growth, and not after the wood begins to ripen. If delayed till then, wait till the plant is dormant in the fall.

16. Sandy or gravelly land can usually be worked immediately after rain; but if heavy land is ploughed or cultivated when wet, or so dry as to break up in lumps, it is injured.

17. Watch all crops daily. Plants are living things, and need attention. Diseases, insects, drought, or wet may destroy them in a few days, or even hours, if left uncared for.

18. If you cultivate Strawberries in the spring, do the work *very early*—as soon as the ground is dry enough to work. After the fruit-buds show themselves, stir the ground with a rake or hoe only, and never more than 1 in. deep. I advocate early spring cultivation, and then the immediate application of the mulch.

19. Just as the ground begins to freeze, in the fall or early winter, cover Strawberry plants with some light material that will prevent alternate freezing and thawing during the winter. Never use heavy, unfermented manure for this purpose. Leaves, straw, salt hay, *light* stable manure, or any old litter from the garden, answers.

20. In setting Raspberry plants, or any fruit, never set in hard, unprepared soil. Do not stick them in little shallow holes, nor in deep, narrow ones, wherein the roots are all huddled together; make the holes large and deep, either with the plough or spade, fill the bottom partly with fine, rich, moist surface soil, free from lumps and manure, and *spread* the roots out on this, then fill in with very fine, pulverised earth, setting the plant, in light land, 1 in. or 2 in. deeper than it grew naturally; and in heavy land, at the same depth. If manure is used, spread it on the surface, *around*, not up against, the stem of the plant.

21. Both for the sake of economy and thoroughness, use the plough and cultivator rather than fork and hoe, whenever it is possible. Ground can be laid out with a view to this rule.

22. In cultivating crops among trees, use short whiffle trees, with the traces so fastened as to prevent the young trees from being scratched and wounded.

23. Save, with scrupulous economy, all wood-ashes, soap-suds, and all articles having fertilising qualities. A compost heap is like a sixpenny savings bank. Small and frequent additions soon make a large aggregate. The fruit grower and his land usually grow rich together, and in the same proportion.

24. Once more I repeat—in handling and setting out plants, *never* let the roots shrivel and dry out. After plants and cuttings are in the ground, never leave them just long enough to dry out and die. Keep them moist—not wet and sodden, but *moist* all the time. In setting out plants, especially Strawberries, spread out the roots, and make the ground *very firm* about them. In trenching stock, put the

roots down deeply, and cover well half-way up the stems. The gardener who fails to carry out the principles under this number has not learned the letter A of his business.

Mr. William Parry gives the following rule for ascertaining the number of plants required for 1 acre of land, which contains 43,560 square ft. :—

“Multiply the distance in feet between the rows by the distance the plants are set apart in the row, and their product will be the number of square feet for each plant or hill, which, divided into the number of feet in an acre, will show how many plants or hills the acre will contain, thus :—

Blackberries.....	8 ft. by 3 ft.	= 24)43,560(1,815 plants.
Raspberries.....	7 „ 3 „	= 21)43,560(2,074 plants.
Strawberries.....	5 „ 1 „	= 5)43,560(8,712 plants.
Strawberries.....	3 „ 16 in.	= 4)43,560(10,890 plants.”

The same rule can be applied to all other plants or trees.

ROSES IN POTS.

Mr. Wm. PAUL's little manual on this subject has, we find, reached a fifth addition, a fact which indicates its value better than anything we can say in its favour. Being the result of the author's own practice, clearly told and well illustrated by woodcuts, it could not fail to be appreciated. We extract from it the following suggestion for growing Tea Roses near London :—

Hitherto the Chinese and Tea-scented Roses have not been grown with much success in the immediate neighbourhood of London, nor in the north of England, when planted in the open ground. It is notorious that no collection, however small, can be complete without some portion of these Roses; and it is the vexatious disappointment alone, attendant upon their constant failure, that could have caused their growth in certain localities to have been given up. Doubtless, in some instances, an impure atmosphere may have caused their failing; but it is my conviction that, if carefully examined, the soil and situation would more often explain the difficulty. The case, then, with which we can remedy these disadvantages, when the plants are grown in pots, leads me to propose their cultivation in this way to those with whom they have not hitherto succeeded; and there is good ground to believe they will succeed well in this manner, and especially if grown under glass. Except for forcing, cold pits are perhaps as good as a house; but wherever they may be placed, they should be kept close to the glass, and exposed to a free circulation of air. They should have the advantage of dews and soft showers, the lights in summer being merely used to protect them from cold nights or rough weather, and, by help of mats or canvas, from a hot sun.

HARDY FERNS.

Polystichums.—Amongst evergreen Ferns, the Polystichums must certainly be placed in the front rank, a position to which they are fully entitled, when we consider their singular beauty and variety of form, bold development, and general utility for decorative purposes. The type (*P. aculeatum*), the common Prickly Shield Fern, is a widely distributed and well-known Fern and beautiful in every way. The Polystichums break into many varied forms, an account of some of the best of which is given in THE GARDEN (Vol. XVIII., p. 555). Though for the most part robust growers, some particularly so, they require good soil in order to produce the best results—fibry loam and sharp gritty sand, with a little leaf soil, fibry peat, and broken lumps of sandstone, a compost which will also suit even the more delicate-growing kinds, and they one and all rejoice during their period of active growth in abundant supplies of water at the root, to admit of which good drainage should always be provided. Ferns, as a rule, detest stagnant moisture, none more so than the different members of the genus under consideration. With regard to position, the stronger growing kinds, which bear exposure well, should be grouped with the Lastreas, both thriving well under similar treatment, or whole beds could be planted with them, interspersed with Lilies, or similar bold-flowering plants that do not require frequent removal. Thus associated, the beauty and grace of the Ferns would be enhanced. The dwafier varieties we should always plant in positions (in conjunction with suitable flowering plants) sheltered from strong winds, and where a partial shade could be obtained, but not under the drip from overhanging trees. One very fine Polystichum, viz., the Holly Fern (*P. Lonchitis*) especially dislikes drip, from which half the failures in regard to it have arisen. Bearing in mind this important fact, it will be at once obvious

that the very worst place for it in the garden is just under the fringe of the outer branches of large trees. Either plant it completely under the branches or else quite beyond their reach, even if exposed to the full rays of the sun; of the two evils the last-mentioned will be the least. Naturally it grows under the shelter of overhanging hedgerows, or else in quite open spaces. We do not doubt that many otherwise easily grown Ferns have been cast aside as difficult to grow and unsatisfactory, simply in consequence of their having been planted in positions totally at variance with their natural requirements. All the members of the Polystichum family are valuable for furnishing a supply of cut fronds, and they also make very beautiful specimens for table decoration, &c., when grown in pots; if they are cultivated with care when so placed they rival in beauty even that of the finest exotic kinds.

Pterises.—The common Brake or Bracken, is probably the best known of all British Ferns, and common as it is, yet when seen in good condition in a locality that suits it, it is really a noble looking plant. It will grow in almost any description of soil, provided there is not much chalk in it. The most suitable place in which to plant it is in the wilder portions of the pleasure grounds, associated with hardy Heaths, American plants, and Conifers. In such company it will be quite at home, and will speedily cover a large space of ground, for its strong creeping rhizomes spread with great rapidity when once established. Being such a strong, and, as it were, overbearing grower, it should not be planted too near less vigorous kinds. It does well planted at the foot of any low shady wall during the summer time, and it also succeeds in a large pot in which it makes a handsome specimen, but in no way does it thrive so well, or is seen to such good advantage, as when treated in the broad manner first pointed out. This Fern varies slightly in form according to locality. Some few of its variations have been distinguished by names sufficiently marked or trustworthy to be worth calling special attention to as plants for general cultivation.

Scolopendrium vulgare (the common Hart's-tongue) is one of the most widely distributed and well known of all hardy evergreen British Ferns. It has broken from the type into almost innumerable forms and varieties, all interesting, and some very striking and beautiful. It has the merit too of being a wonderfully accommodating plant, one which will thrive in almost any position. Like nearly all Ferns, it, however, prefers a shady situation, though in a wild state it may sometimes be met with on dry stone and brick walls, as well as on shady moist banks. Its favourite position is, however, by the side of a stream in a shady ravine, and I have seen fine plants of it between the joints of brickwork at the top of old wells, a position in which the fronds attain wonderful dimensions; so variable indeed are the places in which it thrives that good use may readily be made of it in gardens. The first point to be considered is the all-important one of providing suitable soil for it; because it happens to be common, any sort of soil is too often given it, and failure the result. A suitable compost for it should consist of about equal portions of fibrous peat and loam, with some good sharp sand added thereto, and also a rather liberal addition of broken oyster-shells or limestone. As to position, I should associate the Scolopendriums with the Lastreas, Polystichums, and Lady Ferns, or place them in groups on the rock garden, always planting them in conjunction with some flowering plant that will thrive well in similar soil, and under conditions suitable to their mutual well-being. During hot, dusty weather in summer a daily syringing will much refresh and invigorate them; the best time in the day in which to do this is in the afternoon. All the Hart's-tongues are well adapted for culture in pots, and if grown make useful plants for room and table decoration.

Struthiopteris.—This is a fine, hardy, exotic genus of Ferns, by some called *Ostrich Ferns*, their fronds having somewhat the appearance of ostrich feathers. A striking peculiarity of the *Struthiopteris* is the way in which the fronds grow, the same plant producing two kinds of them—fertile and sterile; the fertile fronds are always grouped in the centre of the plant, and the sterile ones form as it were a cordon around them. Abundance of stock can speedily be obtained of this Fern by division of the creeping underground stems, which run for some distance around the plants when well established. They require good peat and loam well drained to grow in, and should be planted in groups in bold, slightly-sheltered spots, when their noble appearance during their season of growth would not fail to be admired. Being

deciduous, it would be advisable to plant amongst and around them some *Polystichums* or other evergreen, robust-growing Ferns for winter effect, while for other seasons some of the finer varieties of Lilies which we now possess would form a useful mixture. The names of the two kinds of *Struthiopteris* adapted to our gardens are *S. germanica*, a native of Germany, and *S. pennsylvanica*, a North American species, which produces large and very graceful-looking, light green coloured fronds, and when in good health and condition, decidedly one of the most beautiful of hardy Ferns.

Trichomanes.—The beautiful Filmy Ferns, as they are called, represented by the genus just named, the *Hymenophyllums*, and *Todeas*, are not adapted for open air culture; to do them anything like justice, they require a special habitation prepared for them under glass, so that they can at all times be kept growing in an atmosphere heavily charged with moisture, and also always subject to conditions of perpetual shade. Therefore, all who wish to cultivate these Filmy Ferns (in some respects amongst the most beautiful plants in existence) must have an unheated and well-shaded glass structure for them. This attention they will well repay; but though I mention them here, they will not succeed well in ordinary open-air Ferneries.

Woodisia.—This pretty little genus of deciduous hardy Ferns requires some care in order to ensure the best results. *Woodsia*s are admirably adapted for a northern position in the alpine or rock garden. As they are impatient of sunshine, the drainage of the spot on which they are proposed to be planted should receive special attention, and they should be planted in a mixture of fibry peat and loam, with some sandstone broken up and mixed with it. It is a good plan to place them between little blocks of sandstone just peeping out of the soil, a position for which they have a great partiality. These blocks of stone could, if necessary, be covered with *Sedums* and other suitable flowering rock plants. *W. ilvensis* makes a very pretty pot plant well drained; otherwise, failure will be pretty sure to be the result. The best hardy varieties are *W. ilvensis* and *alpina*, and there is also a very beautiful North American kind named *W. obtusa*. The hardiness of this, however, is doubtful, but still in sheltered localities it is worthy of a trial.

Woodwardia.—Of this beautiful genus of Ferns we are only acquainted with one variety that will live in the open air in this country in winter, and that is the North American *W. virginica*, a strikingly handsome plant, producing fronds often 2 ft. in height, and of a most beautiful pale green. It should be planted in a warm, sheltered locality.

H. BAILEY.

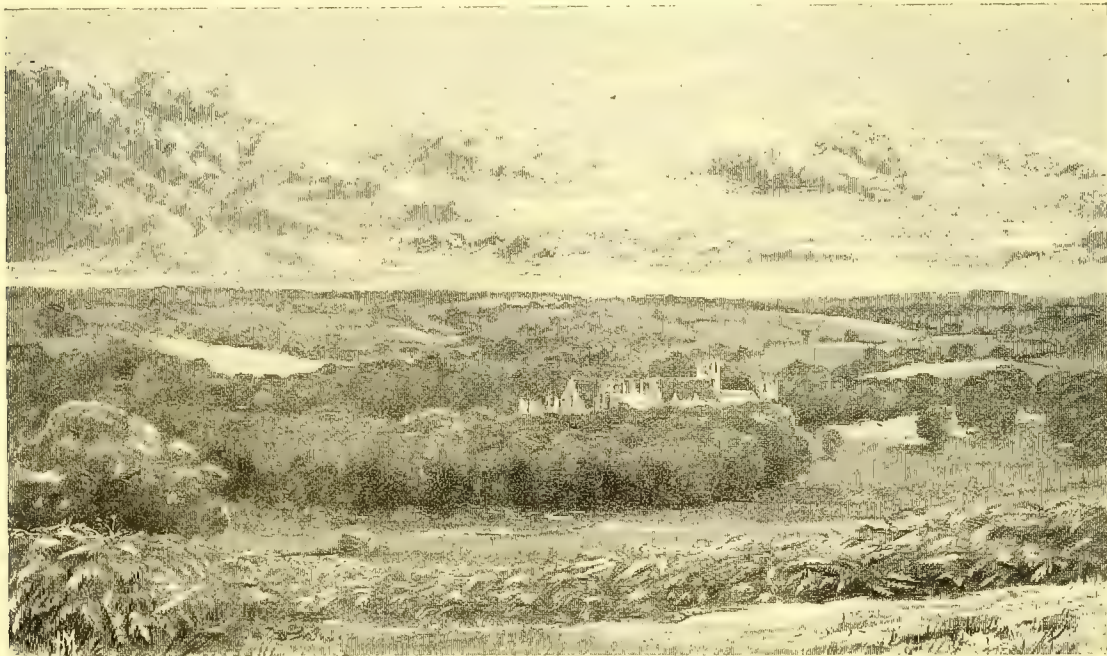
MARKET GARDEN NOTES.

Tricolor Pelargoniums.—The beautiful shades of colour that one so much admires in the tricolor *Pelargoniums* are never so bright and distinct as in the early spring months. This most delicate section of an important family of plants rejoices in a temperate climate such as it is easy to create under glass at this time of the year. Subjected to the full influence of such sunlight as we may be favoured with at this time of the year, indulged in an average constant temperature of 50° by night, and 55° to 60° by day, whilst not too much deprived of air, and supplied with enough of atmospheric humidity to promote a free and somewhat luxuriant growth, the various colours which are found united in the leaves become extremely bright and distinct, and render the plants of great decorative value. Few plants present a more attractive and tempting appearance than the tricolor *Pelargoniums* as brought into Covent Garden by those growers who make them a speciality, and I have remarked that they are amongst the first plants to find purchasers in the early morning. They are mostly grown in 2½-in. pots and brought in trays containing one dozen plants, the prices ranging at from 4s. to 6s. per dozen. The great point in their case is to get the cuttings struck early in the autumn, or better still in August. Keep them just on the move up to the turn of the year, then pot them off and give enough warmth to ensure a free leaf growth.

Callas and Roses.—It is not often that the market grower attempts to grow two different kinds of plants together in the same structure. The attempts to do so would in most cases result in a diminution of quality in one or other, or, more likely still, in both subjects, so that what would be gained in one way would be more than lost in another. There are, however, exceptions to this rule, of which *Callas* and *Roses* are, perhaps, the most striking instance

The Calla is found not to need that maximum of light found indispensable to the welfare of most flowering subjects, and expands and perfects its marvellously chaste blooms to great perfection in the partial shade afforded by Roses when trained over the roof. In one respect at least the Rose and the Calla work in well with each other, for both are extremely liable to the attacks of green fly, and the fumigation indispensable for preserving the Rose shoots free from it serves to preserve the Calla against its insidious attacks. I do not know of any one plant the market value of which is so liable to be lowered by the attacks of aphides as the Calla. Its great beauty of course lays in its spotless purity, and it lays in the power of a dozen miserable little greenflies to so dim this in the course of a few hours only, that its price may be reduced thereby by one half or more. The aphides breed in the folds of the opening leaves, and only to the very diligent and penetrating eye are they visible. The more inexperienced growers pass them by, for, owing to the rather coarse, quick, growing nature of the foliage, it does not appear to suffer in any sensible manner; but there comes a time when this little colony of robbers sends forth an exploring party, which, spread-

hardy nature, it may be brought into market at times when it would be almost impossible to expose the greater portion of tender plants there, and may, if not sold, be left until the next market day. Of course this cannot be done when the plant has been pushed along in brisk heat, but if grown cool and well hardened, this *Selaginella* will resist without injury a large amount of exposure to cold draughts or a continued low temperature. The sale for this Moss is probably not quite so brisk as it was, for there are now large importations of a native kind from Devonshire, which is sold in large cakes, so to say, is to be obtained at a cheap rate, and is in many instances found to be an efficient substitute for the *Lycopodium*. *Selaginella Kraussiana* will, however, always remain a favourite subject, in many cases indispensable to the floral decorator, and those who may be hesitating as to what to grow in the shade of other things cannot do better than turn their attention to this Moss. As illustrating the great demand that exists for this little plant, I may mention the case of a large floral decorator, who, finding he could not obtain enough of it for his purpose, built a house expressly to keep up a supply of some 6000 pots. A salesman, too, in Covent Garden once remarked



Tenshurst; distant view of house from near Sydney Oak (1880).

ing over the fair white field, sully it to such an extent that its virgin purity is for ever gone. The flower has lost its characteristic feature, and is no more desired by buyers. There is only one way to grapple with the foe; it must be taken for granted that he is always there, and strong action taken with regularity against him. Now everyone knows that the Rose is also sure to be more or less attacked by aphides, so that if proper measures are taken to keep them clean, the Calla will be sure to be rid of their arch enemy.

***Selaginella Kraussiana*.**—This, more commonly known in Covent Garden as *Lycopodium Moss*, may also be grown as an under crop, where the necessary atmospherical conditions can be maintained. Although this plant is of easy culture, it is still a fact that to bring it into market in good condition, considerable care, forethought, and experience are required. When, however, the cultural care has been what it should be, the grower may certainly count upon profitable returns, and good samples are sure to meet with ready sale. Where many err is in keeping it in heat for too long a period; it only attains its full depth of verdure when allowed to complete its growth in a cool temperature. Crowding, too, is often a source of mischief; each plant should stand free from its neighbour, so that the foliage may drop down and clothe the sides of the pots. There is one advantage connected with this plant: being of an extremely

to me, "If I had a dozen large houses, I would fill them with *Lycopodium*; nothing pays better." J. CORNHILL.

Covering Seeds.—I quite agree with "Alpha's" remarks (p. 315) on covering seeds. Thousands are buried alive—are suffocated through excess of covering. Undue hardness of soil may also prove an obstacle to growth; but I believe the seed-bed and its covering may also be too soft. A certain amount of resistance seems needful for the development of healthy growth in seeds. The advice not to cover with soil at all, only lay a sheet of glass over pans or pots of small seeds, is also good; but a caution is needful in reference to it. I have not seldom seen seeds so covered and placed on shelves within full reach of the sun; the heat such seeds have to endure is almost beyond belief. The glass should either be whitened over or covered with paper; but seeds are much better placed in the shade, or even in the dark, until they germinate; they need no light to excite them into growth. As soon as the germ develops into a stem and leaf—not before—can it make any good use of light. Of course, seeds germinated in the dark need careful treatment in their first stages of planthood; but with careful introduction to the light, the young plants speedily gain strength, while a larger percentage of seeds will germinate in shade or semi or total darkness than when exposed to light from the first.—D. T. FISH.

TREES, SHRUBS, AND WOODLANDS.

A FEW CHOICE LAWN TREES.

Juglans regia laciniata.—As an extremely elegant foliaged tree of moderate size, this may be recommended to planters with confidence; as a group of three or more, or singly, on the lawn or near the banks of a lake it is quite in place. The foliage, which is light and feathery, much more so than that of *J. regia*, is retained till late in the autumn, and is not so dense that Grass will not grow under its shade. The form is decidedly round-headed and somewhat pendulous. The nuts are rather larger than those of the common type.

Platanus striata is another round-headed half-tree of about 20 ft. or more in height. Its foliage is denser, and the whole habit of the tree more compact than is the case with the generality of the Planes. If left to itself it branches out very close to the ground, but it is best to regulate the height of the stem to about 4 ft. or 5 ft. previous to forming the crowns. It contrasts uncommonly well with Coniferous plants, which will eventually overtop it by 20 ft. or more, and therefore, as a tree for balancing Coniferous grouping or for forming a pleasing gradation from the higher to the lower forms of trees, it is of much service. The bark is a greyish-green in general aspect and streaked. Although the foliage is dense, yet, owing to the moderate spread of the branches, Grass grows very well under its shade.

Gleditschia chinensis may be usefully employed in a position where a partial through view may be required, as, for instance, when some architectural object such as a pavilion, summer-house, fountain, or large statue is wished to be seen. Its habit is rather pendulous, its branches very few and twisted, and the foliage more vigorous than in the generality of the species. The form is usually of a spherical character, and the height does not exceed 20 ft.

Pterocarya caucasica, a shrub of a massive character, both in branch and foliage, is a distinct subject for any garden. Its foliage partakes of the appearance of that of the Walnut, but longer, the leaf-rib rivalling in length that of *Ailantus glandulosa*. It succeeds best on elevated knolls or on the slopes of hills, and is not to be recommended for planting in low-lying situations or near water, as in such situations it is liable to injury from excess of cold. Where it might seem desirable to plant a group of trees of a near similarity in appearance, and still to obtain diversity, such as the *Gymnocladus canadensis*, *Ornus europæa*, *Juglans* of various sorts, such as *nigra* and *cinerea*, and *Ailantus glandulosa*; this tree-shrub would make a useful outside member of such a group.

SYLVESTRIS.

Pyrus Malus floribunda.—I am glad to find by a note in THE GARDEN (p. 287) that this very beautiful, free-flowering, hardy shrub will force freely, as I can readily imagine what a pretty sight neat little standards of it would produce in pots in a greenhouse or conservatory. Placed with their heads just above those of other plants, they would show themselves off to the greatest advantage. Here in the shrubberies among *Rhododendrons* it forms quite a feature every spring, as it is then a mass of blossom, and much admired by all those who see it. Not only is it very gay, but its habit is light and graceful, the long branches weeping like those of a pendulous Willow. Forced plants must be valuable for cutting from, as such shoots laden with rosy-coloured flowers would be invaluable in vases.—S. D.

Mexican Orange Flower (*Choisya ternata*).—Now that we have passed through a winter of almost arctic severity, it may interest your readers to know that this shrub has stood out here unprotected through weeks of severe frost, the thermometer often falling to 5° at 4 ft. from the ground; the flower-buds are now opening, and the whole plant will soon be covered with its sweet-scented white blossoms. After such a trial as the late winter, this shrub must be considered worthy of a place in every garden, and would be no mean occupant of a south wall. It strikes roots readily from cuttings in a close, cold frame, and grows well in any good garden soil.—W. O. S., *Fota, Cork*.

Fabiana imbricata.—This pretty Heath-like Chilean shrub is now looking quite healthy and green, after having been exposed to the severe frost for weeks without the least protection; too much cannot be said in its favour, as it flowers most profusely every year, every twig being covered with numerous Heath-like blossoms. It roots readily from cuttings made of the small side shoots, and will grow and thrive in any good soil, making a very handsome bush.—W. O. S., *Fota, Cork*.

A Weeping Elm.—In a recent number of THE GARDEN a description was given of a weeping Elm possessing a singularly pendulous habit. There is a tree answering the description given by your correspondent growing on Sir Joseph Whitworth's estate at Darley Dale, Derby. It is quite a timber tree, and of considerable age. The branchlets of the lower boughs hang literally like strings, and are from 6 ft. to 10 ft. in length. I have trees grafted with these branchlets, but at present they indicate a condition of growth more like that of the ordinary weeping Elm than the tree in question. The upper (or head) branches of the original tree have nothing peculiarly noticeable about them. Messrs. Smith, of the nurseries near, sell grafted trees of the above as the "Whitworth Elm."—V.

Quercus glabra.—May I suggest to your correspondents that if they do not sign their names (to which there may be sometimes objection) they should at least give some token of their locality, especially when speaking of the hardiness of plants. "Alpha" (p. 370) recommends a free planting of *Quercus glabra* both for its beauty and hardiness. It is a handsome and interesting species, and the fruit is said to be edible, but it is only hardy in the warmer parts of England. I have often tried it, and as often failed, as the first hard winter has always killed it, and I never saw it really flourishing except at Bicton.—H. N. ELLACOMBE, *Bitton, Gloucestershire*.

THE ROSE GARDEN.

ROSES IN WINTER AND SPRING.

Early Forcing.—One of the most important requirements in early forcing is a suitable structure, without which it would be folly to expect even moderate success. I believe, for the very earliest work, that a house three-quarters span, 20 ft. or more wide, with long side facing due south, or even south-east by south, at an angle of not less than 30° or more than 35°, while the back part may be at a convenient angle conforming with the width, is the best. A maximum of light is another important feature, and what we want is "more glass and less wood"—the larger the squares and smaller the laps the better. I am convinced that half the greenhouses used for growing winter flowers have four times more woodwork on the roof than is necessary. The ventilation should be of the most perfect description, and so constructed as to admit air evenly all over the house, and not in gusts. As to shading, it is necessary for the best results, especially so after a few days of cloudy and dark weather; flowers about to open will, with fitful bursts of sunshine, scald and change colour, more especially if the temperature outside will not allow of sufficient ventilation. Permanent shading is objectionable from the fact of its being a fixture, as there are many days during even summer when it is too dark for many plants; and yet we must have shade. The best shading, in my opinion, should be portable, and used only when the sun shines. The best and cheapest is some light material such as scrim canvas or tiffany, which can easily be fixed either inside or outside, on rollers or wires, whichever are thought best. If inside, some little sacrifice will have to be made in regard to the space it occupies when not opened. If shading is used from the outside there are times in winter when it would be difficult to work. I believe all sun-loving plants, such as the Rose, require all the light they can have without being actually sunburned; and that shading, like ventilation, should be entirely under control.

The Soil for Roses is most important, and without the right soil "solid gold Roses" cannot be had; for, depend upon it, there is a fitness of soil necessary to produce not only perfect Roses, but perfect Strawberries, Grapes, or anything else. When I say perfect, I mean such as are grandly finished, such as lack neither size, colour, nor form. I would like to mention a case of what soil had to do with Grape growing. A gentleman's gardener whom I knew perfectly well used to grow Black Hamburg Grapes as near perfection as possible, never failing to win the first prize wherever he exhibited. In course of time he changed his situation (but not his employer), built new vineries, had all modern improvements, made borders better than ever before, and with the best soil, as he thought, ever put in a Vine border, he would beat everybody; but, at the end of three years, instead of his winning first prizes, he had to be content with thirds. This was too much for him to bear. The Vines were healthy, but the fruit would not finish well; so the soil was all taken out of the borders early in September whilst the Vines were in full leaf, and its place filled with soil from the identical field from which he had made his old borders, having to cart it across country thirteen miles, and the result was the very next June he had his usual first position. It is hard to define the best soil for Roses, but it is agreed on all sides that the best for them is fat, turfy loam from an old pasture that has been grazed for a number of years, an

if the soil has a tendency to clay, so much the better. But this is indefinite. The component parts of soil vary as much as do the variety of Roses themselves. The best soil can be had by testing different samples from the most apparent favourable spots only—that is, in parts where not much Rose growing has been attempted and no experiments made. As a safe guide for selecting I would say that soils that contain a good proportion of mica may generally be relied upon to produce good Roses. Soil should be collected either in springtime or summer, stripped off from 2½ in. to 3 in. deep, piled in convenient heaps, and not too dry, when a slight fermentation should be encouraged; and if this does not take place, turn over the mass and add moisture, either as water or in the shape of liquid manure. An occasional turning over, and oftener if the soil is required early, will be beneficial. Those who grow Roses must have plenty of time to attend to them. They must also have a knowledge of the individual varieties, their peculiarities and characters; must be prepared to meet with failures and losses, in spite of appliances, experience, and material, for there are many misfortunes which are beyond the best control and cannot be helped.

Propagation by means of cuttings is the best method, wherever practicable; but there are some varieties, such as Baroness Rothschild, Madame Lacharme, and Mabel Morrison, that do not strike root freely, or are very slow to start into vigorous growth. In such cases budding is best, using either the Manetti or Grifferaie stocks. Cuttings should be rooted as early as possible, say from November to January, shifting into larger pots as necessary from time to time. By the 1st of March the earliest struck plants should be ready for 4-in. pots. The soil should have added to it in this and subsequent shifts one twenty-fifth or thirtieth part of pure bonedust, being careful to use plenty of drainage, frequently syringing and judiciously watering, and occasionally giving soakings of liquid manure as the pots get filled with roots. The last potting should be made not later than the first week in August, into sizes according to the size of the plant, being careful not to overpot. Stopping and tying are important. All Roses like support, and should be carefully staked—at first requiring only one stake, but as they grow three or four will be necessary. Stopping should be done with judgment, and not too often. The very strongest shoots should be pinched as soon as four or six leaves are developed, the last stopping to be about a week before the final shift. The plants are better grown in a light and well-ventilated house during the whole of the first season. From the first week in September, for the very earliest crop, water should be gradually withheld, but not so much as to cause shrivelling of the wood or destruction of the roots. Early in October, according to the condition of the plants, they should be started, and if any pruning is required, it should be done a few days before. Nothing but the extreme points and any watery shoot need be taken off. If the plants for a few days or a week can be placed in some dark, cool place, first giving them a thorough soaking, it will cause immediate root action, which is of the first importance in the forcing of all plants. Keep the temperature, if possible, not higher than 50° at night, syringe often, and fumigate when required. After the plants are well broken, and leaf action is thoroughly developed, water often with weak liquid manure, and by the middle of November the temperature can be 5° warmer at night, and from 10° to 15° in the daytime. The nearer the glass, without actually touching, the better for the plants. With such treatment the crop of flowers should be ready by the middle of December and onwards. After the crop is off, and it is decided to keep the plants, they should have a liberal shift, and be induced to make as much good wood as possible. Strong shoots springing from the bottom should be encouraged, and, after being 1 ft. high, if the plant is thin, they may be pinched back; this will help to balance the growth. When complete, place the plants in a cold house to rest. They can then either be planted out to bloom out of doors very late, or kept for another year's forcing. If it is decided to force them again, keep them as quiet as possible, withholding water in large quantities, but do not let them shrivel. About the middle of July turn all out of the pots, wash away carefully all the loose soil, repotting into clean pots of the same size, or larger if necessary, with the same routine as for young plants, and starting them about the same time. It will be found that these plants start easier into growth than young ones, from the fact of their being forced before. The only variety used for the very earliest work is General Jacqueminot; but amongst all the multitude of Roses there are others that will bear the same treatment, and I would suggest the trial, amongst the old ones, of the following: Coup d'Hebe; Camille Bernardin, light crimson; Jean Cherpin, very dark crimson with maroon shadings; and Paul's Princess of Wales, brilliant scarlet. For second early work the same cultivation and management is required, except that the final potting may be delayed a month or six weeks later, and the starting into growth should take place from the middle of November and forwards at intervals to the 1st of February.

Beds and Borders Indoors.—For a succession crop this mode of growth gives the least trouble, and is often very remunerative, but it has not the advantages and portability of pot culture, and for a first early crop is not so certain—with this serious drawback, if the crop fails the season is lost, and the house-room lost for a year. If it is determined to try a first early crop in beds, the house should have a southerly exposure, as for pot culture; the border should be constructed independently of the main earth, with a space intervening as much as may be thought well, and if a row of hot-water pipes is placed beneath the bed, so much the better. This should be so arranged as to be able to enclose the whole tightly, and when the time comes to start the Roses into growth, in autumn shut off the heat from the rest of the house, and excite root-action first, following the same treatment as regards syringing, stimulating, and keeping clean as for pot culture. Use one-year-old plants that have not been forced, planted on March 1, 2 ft. apart each way, with the object of removing every other as soon as they crowd, or after the first year's flowering, stopping and tying for the first season as required. The advantage of an independent bed will be easily understood when the period of resting comes, as we then have entire control of the root action. A bed 15 in. to 20 in. is deep enough, draining well and using soil as given before, with a good sprinkling of ½-in. bones in addition. Mulch May 1 with good mellow manure, either cow manure or good stable manure, and mulch again after the middle of November. Encourage all growth after the crop is over, and preserve it entire—that is, do not shorten the canes, and instead of cutting them short at the annual pruning, cut out all the old wood of the previous year's growth, and select from three to five canes to bend down for bearing a second crop of blooms. By so doing more flowers can be had. Any one who has grown Raspberries will understand what is meant by the bending method. For second early and late forcing, houses with ends due north and south are generally thought to be the best. The Roses may be planted out in beds that have immediate contact with the earth, but I prefer to have them isolated and under control. With any method ensure good drainage. Fixed roofs or portable roofs—which are the best? I am inclined to think, with movable shading, fixed roofs are the best, with abundant ventilation always. The idea of having to freeze Roses to make them flower is a fallacy. Plenty of sunshine and little water in the autumn, with the natural decline of the temperature, accomplishes more than excessive freezing in the way of elaborating and maturing the plant for its next season's work.

Insects and other Ailments.—Presuming that all growers are familiar with the enemies of plant-life generally, and how to exterminate them, and also the ordinary white mildew, yet there is one fungus growth which, unfortunately, makes sad havoc amongst Roses. This is called black mildew. In reality it is a *Peronospora*, closely allied, if not identical, with *Peronospora infestans*, the variety so destructive to the Potato crops. The attacks of this fungus are very sudden, appearing generally with and after a day or two of cloudy, murky weather when the atmosphere generally is heavily charged with electricity. The plants show frequently a languid appearance before the fungus is discernible. Within forty-eight hours I have seen every leaf with black blotches as large as Peas and three parts of the foliage fallen off. If this occurs during July, before the wood is hard, it frequently quite seriously injures the plant. The best application for checking the growth of this fungus, so far as I know at present, is equal parts of black sulphur (*Sulphur vivum*), of druggists, and newly-slaked lime, mixed together and applied frequently, and especially during the time of dull or showery weather, dusting both ground and plants.—JOHN THORPE, in "New York Horticultural Society's Report."

John Baxter & Son.—Some time ago we had a letter from Edinburgh (19, Elder Street), asking us to sell electros. Believing that these were required for indiscriminate use in various catalogues, we declined to supply them:—

"Printing Office, 19, Elder Street, Edinburgh, March 9, 1881.

"W. Robinson, Esq., F.L.S.

"Sir,—In reply to your memo of yesterday, we ask you to sell or exchange electros of engravings from *Gardening*, to be used by us in illustrating seedsmen's catalogues. We know there is a prohibition against disposing of Vilmorin's blocks, and we do not require copies of these. We may mention that M.M. Vilmorin, Andrieux & Co. declined to supply us any of their electros, with the result that we copied some hundreds of their designs, and we now have an arrangement by which we can get whatever we want. If we cannot purchase in the market we must manufacture for ourselves. You will understand we do not offer our electros for sale, but keep them for our own exclusive use. We trust you will see it is for our mutual advantage to trade.

"JOHN BAXTER & SON."

We replied to this, again declining to dispose of electros, stating that we should object to their copying them, to which the following letter was received:—

"Edinburgh, March 12, 1881.

"W. Robinson, Esq., F.L.S.

"Sir,—Yours of yesterday to hand. We regret your decision not to supply us electros, but from past experience cannot say we are surprised. Failing our getting the electros elsewhere, we certainly shall not hesitate to make copies. We are quite aware of the law of copyright, and shall in no way infringe it. At same time we regret that, being willing to pay for designs, we should have no alternative but to copy without permission or acknowledgment.—Yours truly,

"JOHN BAXTER & SON."

That sentence which we put in italics is certainly a very hard case for Messrs. Baxter & Son. Many, however, as are the difficulties and mysteries of our law, we do not think that Messrs. Baxter are obliged to copy without acknowledgment.

THE KITCHEN GARDEN.

FACTS ABOUT POTATOES.

THE following facts from the Cork correspondent of the *Agricultural Gazette* seem important. The crops experimented on were grown on the model farm at Cork, and the report of the committee gives the following percentage of disease and weight per acre of the varieties tested. From this it appears that those popular Irish Potatoes, the Skerry Blue and the Rocks, still hold a high place as disease resistors. It would be interesting, however, to learn when the experiments in question were made. It must have been early in the spring, or, perhaps, late in the autumn. The time of testing for disease often makes all the difference. For example, I bought this week a sack of Champions, warranted free from disease, but, nevertheless, at least 20 per cent. of them proved, in preparing them for cooking, badly affected. Had the test been applied at lifting, these very samples would have been pronounced clean. Nor is this a solitary instance. Clamps are now being opened in all directions, and heavy percentages of diseased tubers are found. Here are the statistics just referred to. Percentage of disease to sound tubers: Champion, 3; Magnum Bonum, 5; Skerry Blue, 2; Brown Rocks, 6; White Rocks, 6; Red Skin Flourballs, 8; Early Rose, 9; Victoria, 11; Regents, 19; Moray Blues, 20; Bean, 24; International, 29; and Reading Abbey, 33. The gross weight per acre of the respective varieties were Bean, 11 tons 18 cwt.; Brown Rocks, 11 tons 16 cwt.; White Rocks, 11 tons 11 cwt.; Regents, 11 tons 4 cwt.; Skerry Blue, 10 tons 14 cwt.; Red-skin Flourballs, 10 tons 11 cwt.; Champions, 10 tons 8 cwt.; Magnum Bonum, 10 tons 5 cwt. The weight of marketable tubers per acre was Brown Rocks, 9 tons 17 cwt.; White Rocks, 9 tons 11 cwt.; Red-skin Flourballs, 9 tons 10 cwt.; Magnum Bonum, 9 tons 4 cwt.; Skerry Blue, 8 tons 12 cwt.; Beans, 8 tons; Regents, 8 tons; and Champions, 7 tons 15 cwt.

The report of the committee adds that good farmyard manure and seaweed gave the best results; and the opinion is expressed that were the land properly tilled, and the manure ploughed down in the autumn, there would be no danger of the manure favouring the development of the mycelium of the disease-fungus, as fresh manure undoubtedly does. It is also added that in the experiment at Cork with phosphates, whether in the form of bones, raw minerals, or sulphur-phosphates, the results were nil, so far as any immediate action on the quantity of the Potato crop was concerned. Neither was there any appreciable difference in the quantity of the weight of the crops obtained by planting whole Potatoes, cut sets, or Potatoes from which all the eyes except one were removed. As the experiments are to be repeated, it is to be hoped that special attention may be given to a point on which this report is altogether silent, that is, the differing percentage of marketable tubers from whole sets, cut sets, and one-eyed sets. It is generally thought, and my experience confirms the opinion, that sets with one or a few eyes yield larger and more even samples than those in which all the eyes are left.

D. T. FISH.

Broad Beans amongst other Crops.—The plan of growing Broad Beans amongst Potatoes (p. 358) is one that has long been pursued by cottagers, and a very good one it is, as fine crops may be grown without taking up any ground in the way they would if planted in rows, as one may be dropped into a hole here and there a few yards apart, when, with plenty of light and air, they branch out from the base and bear a great number of pods. By planting them in the rows of Potatoes they are out of the way of the hoe, and the slight earthing up they get does them good, by giving them more stability and fresh earth to root in. I have never seen Broad Beans

grown amongst Broccoli, Cabbage, or Parsnips, and should doubt if they do would much good there, unless they got well up before them; but there are always vacant spaces in gardens where Beans will succeed that cannot be well utilised for anything else.—S. D.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

APRIL 12.

THOUGH not so extensive as the preceding show, that on Tuesday last was an excellent one, and the numerous subjects submitted to the floral committee included several fine plants.

First-class Certificates were awarded to the following:—

Mr. W. Bull, Chelsea, for—

Cœlogyne cristata alba.—A lovely variety, with spotless white flowers borne as profusely as in the ordinary form. The flowers, however, differ from the type somewhat in form, the lip being larger and more concave, and the petals and sepals narrower. This may be truly considered to be one of the finest additions to Orchids that have been made for a long time.

Messrs. Veitch & Sons, Chelsea, for

Dioscorea retusa.—A most elegant stove twining plant having slender stems about the size of a quill, and compound leaves divided into about six leaflets. The flowers are produced in catkins 1 in. or 2 in. in length, and are aggregated in pendulous clusters in the axils of the leaves, giving the plant a strikingly elegant appearance. The plant exhibited was trained to an umbrella-shaped trellis, a plan which suits its peculiar habit of growth admirably.

Gymnogramma schizophylla.—An elegant Fern recently introduced from Jamaica. The fronds are a foot or so in length, rather narrow and finely cut into delicate segments, which render them extremely beautiful. They are produced in a tuft and lie elegantly over the sides of the pot or basket; hence it is an excellent Fern for suspending in stoves or warm greenhouses.

Adiantum monochlamys.—A Maiden-hair Fern with delicately cut fronds, the pinnae of which are wedge-shaped and notched on the edges. They are of a soft green tint, which gives the plant a very pleasing appearance. As it is a Japanese species it may probably succeed in a greenhouse.

Omphalodes Kramerii.—A beautiful little Japanese plant with broadly lanceolate leaves erect in growth; it has flowers about $\frac{1}{2}$ in. across, of a rich deep blue colour, and borne in loose clusters. It is said to be perfectly hardy, and if so, it will be a decided acquisition among hardy plants.

Messrs. F. Sander and Co., St. Albans, for—

Pinguicula Bakeriana.—The same plant that we described at p. 367 as *P. caudata*, a name under which we saw it at Kew. It is a most beautiful plant, and should it prove hardy, its value will be greatly increased. It has recently been imported from Mexico.

Messrs. H. Cannell & Sons, Swanley, for—

Pelargonium lateripes Anna Pfitzer.—An Ivy-leaved Pelargonium bearing a large truss of double flowers of a delicate rosy-pink hue. It is by far the best of the kind yet exhibited, and well deserved the distinction accorded it.

Mr. R. Dean, Ealing, for—

Primrose Amaranth.—A variety with large and finely shaped flowers of a rich, deep amaranth hue, with a conspicuous orange-yellow centre.

Other exhibits in the council room consisted of a group of new and rare plants from Messrs. Veitch, including a magnificent variety of *Cattleya Mendelli* named *superbissima*. The flowers are unusually large, the petals and sepals pure white, and the lip is finely crisped and of a rich amaranth tint. The plant bore six flowers, and was otherwise a fine example of good culture, and the exhibitors were appropriately awarded a cultural certificate. Other plants shown in this group were *Amaryllis Duchess of Connaught*, a white flowered variety, very chaste and beautiful; *A. Empress of India*, *A. Lady Bolsover*, *A. Mirando*, and *A. Sir F. Roberts*, all beautiful varieties and great improvements both as regards size, form, and colour, on older varieties. *Corylopsis spicata* and *pauciflora*, highly interesting Japanese shrubs with catkin-like flowers of a pale yellow colour; *Illicium religiosum variegatum*, a variety with prettily variegated leaves and whitish flowers; *Boronia megastigma*, with flowers of the normal type of colour, as well as a pale yellow produced on the same plant; *Magnolia stellata*, a white-flowered species, producing flowers on the leafless branches; *Daphne atropurpurea* (syn., *Van Houttei*), a singular species bearing the flowers in a congested cluster on the upper part of the branches; and a basket of *Primula pubescens* were also shown.

A similar group was exhibited by Mr. Bull, comprising the pretty double rosy-pink Azalea, shown under the name of *A. balsamiflora*; the plants were large and profusely flowered, and were highly attractive; *Dracæna Lindenii*, a handsome species, likely to become popular on account of its distinct habit of growth and the markings of the elegantly recurved foliage; *Kentia gracilis*, *Sarracenia Drummondii*, *crispata*, and the prettily mottled-leaved *Anæctochilus hieroglyphica*, which is somewhat similar to *Goodyera japonica*.

Mr. B. S. Williams, Upper Holloway, showed a group of double *Cinerarias*, *Lælia harpophylla*, with bright orange-red flowers, and a fine new Azalea named Charles Carmichael, which has large purplish-red flowers, plentifully produced. Mr. Carmichael, Newton Court, Bury St. Edmunds, sent two of his new Azaleas, D. T. Fish, with unusually large flowers (4 in. across) of a rich salmon tint, heavily spotted on the upper petal; and Mrs. Wills, a variety in the way of amœna, but with larger blossoms of a deep crimson-red.

A couple of racemes of the gorgeous *Amherstia nobilis* was sent from the Duke of Devonshire's garden at Chatsworth; these are alluded to elsewhere. A good example of *Pinguicula vallisnerifolia* was exhibited by Mr. Douglas, Loxford Hall, Ilford, the colour of which was a fine contrast to the new *P. caudata*. Mr. Guysett, gardener to Mrs. Perrett, Lynton House, Clapham Common, exhibited some magnificent trusses of *Rhododendron Nuttallii*, one of the finest of all the Sikkim species, having flowers nearly 6 in. across, bell-shaped and pure white.

Messrs. H. Cannell and Sons, Swanley Nurseries, made a fine display with a group of admirably grown and flowered double *Cinerarias*, and several dozen bunches of cut blooms of zonal single and double *Pelargoniums*. They likewise showed a Paris Daisy called Silver Star, which promises to be a highly useful variety for cutting purposes, on account of its pure whiteness; *Mimulus Beauty of Sutton*, a finely spotted sort; a scarlet double *Tropæolum*; some blooms of the original *Cineraria cruenta*; and a variety of *Salvia splendens*, with white and red flowers, and named *M. Issanchon*.

Primroses were shown in fine variety by Mr. G. F. Wilson, Heatherbank, Weybridge, including some very beautiful seedlings, one in particular being very fine, a seedling from Scott Wilson, having a rich plum colour. Mr. Dean, Ealing, also showed some fine named sorts, the most noteworthy being Warrior, rich chocolate crimson; Beatrice, pinkish-purple; Blue Bell, bluish-purple, and the single white, which had reverted from the double white. Mr. Smith, Edmonton, showed laced *Polyanthuses* Byron and Nelson, two superb varieties.

Mr. Wilkinson, gardener to Viscount Gage, Firls Place, Lewes, showed a group of seedling plants of *Anthurium Scherzerianum*, but none were above the usual standard. The first bunches of *Tuberous Begonias* were shown on this occasion by Messrs. Laing & Co., Forest Hill, which, considering their earliness, were excellent. Sir Charles Strickland, Hildenley, showed some finely-grown examples in flower of *Cattleya citrina*, grown on suspended blocks of virgin cork.

In the conservatory there was an attractive display, the pot Roses from Messrs. Veitch and Messrs. Lane, of Berkhamstead, being particularly noteworthy, as both collections contained some excellent, profusely-flowered specimens. Both exhibitors were awarded a gold medal for their groups. In addition to the Roses, Messrs. Lane showed a numerous collection of *Rhododendrons*, all fully flowered and representing some of the finest varieties. A similar award was also given to Mr. B. S. Williams for an extensive group of plants arranged in a very effective manner. It included many Orchids in flower, besides *Amaryllis*, Azaleas, and these were interspersed with *Dracænas*, Palms, Ferns, and other fine-foliaged plants, the whole forming a highly attractive group.

Mr. Aldous was awarded a silver gilt medal for a fine group of decorative plants, among which some well-flowered examples of *Azalea mollis*, in fine variety, were very conspicuous. Near to these was a group of *Cinerarias* from the Society's gardens at Chiswick, which represented a fine strain, especially remarkable for the dwarf, compact growth and free flowering habit. In another large group from Chiswick several fine specimens of *Imantophyllum miniatum* superbum, one of the finest of all the varieties, were very attractive.

As usual in April, there was an extensive display of Narcissi from Messrs. Barr & Sugden's grounds at Tooting. These were not only attractive, but highly interesting, the varieties being very numerous, especially the Ajax section. Among the more remarkable were *N. bicolor biflorus*, a form with two flowers on each stalk, and triflorus, with three blooms; *N. poeticus ornatus*, the earliest of the Poet's Narcissus, was in beautiful condition, as, indeed, were all the flowers. To this group a silver flora medal was deservedly awarded.

Fruit and Vegetables.—These were few, the principal being a huge bunch of *Musa Cavendishi*, the Plantain which was shown by Mr. Buchanan, gardener to Dr. Siemens, Sherwood, Tunbridge

Wells. The bunch weighed seventy-four pounds—an extraordinary weight. The plant from which this bunch was cut was planted when 18 in. high at the end of March last year, and has been placed under the influence of electric light, which circumstance no doubt accounts for the unusual growth, and likewise affords a striking proof of the beneficial effects of electric light upon plants. Mr. Wallis, Keele Hall, Newcastle, Staffordshire, exhibited some excellently-preserved bunches of Gros Colmar, Black Alicante, and Lady Downes Grapes, the two first-named sorts being particularly remarkable on account of their perfect soundness and high finish. Some fruits of the Loquat (*Eriobotrya japonica*) were exhibited by Mr. Bowell, gardener to Lady Parker, Stawell House, Richmond. The fruits are about the size of Walnuts, and of a rich orange-yellow colour. Mr. Miles, High Wycombe, exhibited a bunch of a new early Radish, a round sort of a rosy-red colour, and which promises to be an excellent kind for an early crop.

Scientific Committee.—Canker on Apple wood: Dr. Masters exhibited a specimen to raise the question as to its origin. Dr. Hogg attributed it to frost, observing that water would often settle in the axils, form ice there, which then destroy the tissues. Trees which were of a more delicate nature, such as Newtown and Ribston Pippin, were more subject to it than others. If the roots of such trees reached a cold, damp level similar results followed, the general previous condition being an unripeness of the wood which lead to canker. Multiplication of sepals in *Primula sinensis*: an umbel of this plant, every flower of which consisted of a ball-like mass of green leaves, was also brought by Dr. Masters. *Sarracenia*: a flower with the exterior surface of the foliaceous stigma producing folds and tubular excrescences resembling similar outgrowths not unfrequent on Cabbage leaves. Mr. Elwes exhibited a *Nolina Georgina* from the coast of Carolina, a Scilla-like plant, called Buffalo Grass. This is believed to be the first instance of its flowering in Europe. He also exhibited a Tulip from Elbury Mountain, near to Tulipavioleacea, but with colour of *T. saxatilis*, which, however, possesses broad shiny foliage. He also showed *Tulipa iliensis*, allied to *T. sylvestris*. Mr. Elwes remarked upon the rapid changes which Tulips undergo under cultivation, not merely in the glabrous or downy filaments, but in the shape of the stigmas, &c. Dr. Siemens exhibited a fine bunch of green Banana fruits from a tree which was 18 in. high in March, 1880, but had the benefit of the electric light at night for the first three months. During the summer it had only sun light, but for the last six or eight weeks the electric light was again employed at night. The benefit appeared to be due to the starting the growth last spring. *Arisæma speciosa*.—Mr. Elwes remarked upon the development of the spadix, which bears a long filiform terminal appendage, in that the latter is always found wrapped up in the terminal part of the leaf long before the spathe unfolds.

LATE NOTES AND QUESTIONS.

Strawberry Supports.—Messrs. Reynolds & Co., New Compton Street, have sent us examples of their wire Strawberry supports—a strong wire hoop supported by three stout wires about 1 ft. long; they are cheap, and have the advantage of not affording any harbour for slugs.

Willow Twig.—*Anon.*—It belongs to *Salix caprea*, but the variety cannot be named with certainty without seeing the tree in full leaf. All Willows having round knobby palms, and broad leaves of loose texture belong to the same species, no matter by what fancy names they may be called.—W.

Fruit Tree Protectors.—*W. F.*—Tiffany and scrim canvas, samples of which have been submitted to us by Messrs. Edgington, of Duke Street, London Bridge, are both useful for this purpose, and for shading, but of the two, the tiffany seems the best.

Extension Training.—In my remarks on this subject at the bottom of right hand column for "forest oak," read "finest oak."—J. S. W.

Names of Plants.—*Anon.*—1, *Sparmannia africana*; 2, specimen not sufficient; 3, *Begonia metallica*; 4, *Pteris cretica alba lineata*; 5, *Coprosma lucida variegata*.—*T. E. W.*—1, *Omphalodes verna*; 2, *Corydalis solida*, 3, *Sedum* sp.; 4, *Mesembryanthemum*, sp. Send last two when in flower.—*W. Stanton.*—*Ammodium alatum*.—*G. G. B.*—*Asplenium bulbiferum*.—*W. B.*—*Stanhopea tigrina*. The ordinary form of *Oncidium fuscum* is the deepest coloured of the two flowers you send.—*T. S. W.*—*Eutaxia myrtifolia*.—*Anon.*—*Salix caprea*.—*A. S. G.*—1, *Leptospermum* sp.; 2, *Deutzia scabra*; 3, *Doronicum caucasicum*.

Improved Pruning and Training.—Mr. Simpson speaks (p. 388) of "tying stones to branches to make them fruitful," as the only "original" feature in Mr. Hibberd's published ideas on the natural system of fruit tree culture. I can well remember an Aston Town Pear tree in my father's orchard, some 60 years ago, having the branches drawn down and kept so by brick ends suspended to them with cord. From the well-known habit of growth of the Aston Town, this operation may have been resorted to to counteract the tendency of the branches to interlace; but my father took great interest in planting and management of trees generally, and was an experimentalist, and though the idea may have been borrowed, it can scarcely now be considered original.—V.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

STEMS OF CAMELLIAS SPLITTING.

I WAS interested in noticing in *THE GARDEN* (p. 204) some remarks on the Camellia by Mr. Roberts, and also those (p. 317) of your more recent correspondent "P.," who makes a brief allusion to the garden wall at Scorrier, which, as Mr. Roberts says, is 380 ft. in length, and 20 ft. in height, and covered with Camellias. Unhappily, Kent is many miles from Cornwall, or to view these plants in flower would be a very enjoyable sight, and one well worth going a long distance to see; but, indeed, whether in flower or not, when in vigorous health the Camellia, both in habit of growth and beauty of foliage, as an ornamental shrub has perhaps no rival. In the matter of hardness it has, as I have previously stated in *THE GARDEN*, some peculiarities which, in severe climates, detract from its value as a hardy plant. No amount of frost seems to affect the foliage and smaller branches, but 10° or 15° of frost cause the main stem to split. On the north and east aspects against the walls of my house here at Tunbridge Wells I have some 1½ doz. plants of Camellias, of various sizes, which have been exposed during the past winter to a temperature of 4° or 5° below zero without any other protection than wrapping the stems with hay-bands. Owing to my absence from home this needful precaution was not attended to in due time, and the result has been that two of the largest plants have had their stems slightly split, the ruptures measuring 1 in. across, and the bark destroyed close to the ground; while two others of like size, having had their stems covered, are uninjured. It may be worthy of notice that, while the larger stems have suffered in this way, the recent growths and smaller branches are entirely sound. Owing to the neglect referred to above, some of the smaller plants have suffered equally with the two larger ones. It seems evident that if this tender part of the Camellia plant is protected, that is, the main stem, it will bear any degree of frost. It may also be useful to remark that in my case the mischief to the stems has in all cases occurred close to the ground. I send these few remarks in the hope that they may prove helpful to any of your readers who may care to grow the Camellia as an outdoor shrub. I also send you a twig or two to show the condition of the wood and foliage of the bulk of my plants, which have been exposed, as I have already stated, during the past winter to 37° of frost, with no other protection than that referred to above.

ROBERT MARNOCK.

Tunbridge Wells.

Pinguiculas.—I have tried to grow all the species and varieties of this interesting class of plants that I could get hold of, and have succeeded with all of them but *P. alpina*; it is described as white and lemon tinted. Does anyone know where this plant can be seen in good health? I have twice bought it, but have lost it notwithstanding the greatest attention paid to it. *P. grandiflora* and *P. vallisneriaefolia* grow, flower, and increase freely. I grow the plants in pots in the greenhouse; they do not seem particular whether loam or peat is used as a compost, and I find they do best with some Sphagnum chopped fine and placed on the surface; they are moisture-loving plants, and dislike draughts; the leaves are glutinous, retaining flies and other insects. The species *P. Bakeriana* noticed in *THE GARDEN* (p. 411) is remarkably handsome; it is quite distinct from any of the other species known to us, and, unlike our own Irish Butterwort, the leaves have no sticky substance on their surface. If this beautiful species should prove to be hardy, what a welcome addition it will be to our collections.—J. DOUGLAS.

Epigæa repens at Home.—Few hardy plants have been found to tax the skill of growers so much as this, demanding as it does a combination of conditions that can seldom be accorded it. Mr. Wilson, after repeated failures, has at length succeeded in mastering its culture, and it may be seen in the Wisley Garden growing with great freedom, and looking as happy as one might imagine it would do in its native habitat. I have used the word culture in connection with this little plant, but I should hardly have done so, for the great point appears to be to award it a congenial situation, and then leave it alone in undisturbed repose. This, at any rate, is what Mr. Wilson has done; he has simply naturalised it in his wild garden and his success is perfect. The position chosen for it is a damp one, a leafy screen of Oak foliage warding off the hot sun, whilst plenty of light is admitted at this time of the year. The prostrate shoots travel onwards, rooting as they go, amongst a carpet of Grass, the dead leaves from the Oaks being allowed to remain just where they fall.—J. CORNHILL.

NOTES AND READINGS.

DR. SIEMENS should try his electric light on more sensitive subjects than the Banana—winter Cucumbers, for example. If he can make these grow actively, and bear freely between November and February, he will prove his case. A seventy-four pound Banana from a plant more than a year old considerably is not a feat. A plant 18 in. high, planted in March, and in good soil and proper temperature, should show a good bunch of fruit the autumn following, and ripen by the middle of April succeeding. We have seen as much accomplished in the north, where the nights are long in winter, and where no electric light was employed. Turn the "rays" on a Cucumber plant from November till February, and keep them off the plant in the next light, but growing under the same conditions otherwise, and we shall have the exact amount of sunbeams recorded in Cucumbers, and proof positive of the actual worth of the light.

The comparative value of the winter Brassica crops has been instructively illustrated during the past severe winters we have had these few years back. Broccoli has been the least remunerative crop, Cabbages next, and Savoys next to the Cabbages. Brussels Sprouts and Greens have been the only crops that have yielded a good return, and of these two the Sprouts have been, perhaps, the most valuable. The latter have come to the front in a manner that is likely to popularise them among small gardeners and others who rely on a stock of Greens during the winter months. Many of our Broccoli, it has been proved, are not much hardier than the old Walcheren Cauliflower; prolonged frost and snow, even when the frost is not severe, kills them. From what I have been told and read, and also from my own notes made during a number of years, the following five varieties seem to be the hardiest, or amongst the hardiest, of their class, and stand in the order named: Carter's Champion, Cattell's Eclipse, Shearer's Late White (a Scotch kind), Knight's Protecting, and Snow's Winter White. Numbers of other sorts have been totally destroyed.

One of your correspondents is astonished to find that no Russian mats have yet found their way among French gardeners, but it has struck English gardeners before that in the matter of appliances of this kind the French are very considerably behind ourselves, that is, behind in spending money on articles they can manufacture for themselves. It is all French thrift. We believe expensive glass copings are unknown amongst them, although they employ copings far more extensively than we do. If you go to a horticultural exhibition in this country you see these made of glass and iron; at similar exhibitions in France they are exhibited in wood and straw, and great pride is evidently taken in the neat, yet simple, manufacture of the latter, which are readily plaited together and stand out as stiff and straight as a board, though quite thin, but perfectly waterproof and good non-conductors. Their mats, shadings, and even their fruit walls, all suggest the same simple, but thrifty industry.

Gardening on the Grass, which has been alluded to lately, is an idea that commends itself to flower gardeners. Hitherto the objection to planting on lawns has been the so-called untidy aspect of patches occupied by the growth of bulbs and others after they have done flowering; but the appearance of a lawn need not

be noticeably affected in that way by planting many kinds of spring and early summer flowers in masses to be left to flower and grow till the foliage is mature, after which they may be cut over and the mowing machine passed over the ground in the usual way during the remainder of the season, thus providing a smoothly, grassy groundwork for the flowers the following spring—such as Narcissi, Crocuses, Scillas, Snowdrops, Irises, Colchicums, Grape Hyacinths, Dodecatheons, and numbers of other hardy bulbs and tuberous rooted perennials that are amongst our finest and most showy hardy flowers. That this is no impracticable idea has been proved beyond a doubt. Any or all of these will thrive on lawns where the Grass is not cut over till about the beginning or middle of June. Then the plan is a simple and easy one, and it will not be denied that it is also cheap—cheaper than either spring gardening in beds or bedding-out. One cannot reflect on the possibilities of flower gardening in this way without thinking how long our opportunities have been quite lost or neglected; how many gardens there is now, and have been, in which absolutely no attempt has been made to do more than fill a few beds with a few gay plants in autumn—a style of gardening which was no doubt considered “the thing” in its time, but now condemned. There was no genius in such gardening; none.

PEREGRINE.

NOTES OF THE WEEK.

New Plants.—People visiting my garden at once remark the rare beauty of a new shrub which I had the good fortune to raise from seed. It is a variety of *Pyrus Maulei*, the flowers of which are twice as large as those of the parent, and their colour, instead of being an orange-scarlet, is a glittering deep carmine, a colour only approached by the deep coloured varieties of *P. japonica*. The principal merit of the new comer is its floriferousness, inherited from the parent; in fact, there are more, or, at least, quite as many flowers on the branches as there are leaves. The fruit is larger than that of *Maulei*, sweet scented, and yields the same rich-flavoured conserve. As regards Grape Hyacinths, *Muscari Argau* comes in fourteen days later than *M. Szovitzianum*, which it surpasses in size of spike and in its deep ultramarine colour. Next to this the true *M. flavum* is very fine; its shape is the same as that of the well-known *M. moschatum*, but the bright lemon-yellow blooms make it very showy. *Trillium discolor* is a very rare plant as yet; the olive brown leaves are nicely marbled with emerald green. A little Iris, only 2 in. in height, is very floriferous, the sulphur-yellow flowers looking very pleasing; this was introduced by Mrs. Danford, and ought to be called *I. minima*. *Iberis Pruiti* is also a desirable plant; the very low tufts 1 ft. through, have numerous large well shaped flowers, creamy white with a slight tinge of rose. A variety of *Myosotis dissitiflora*, raised by Mr. James Allen, of Park House, Shepton Mallet, is in full beauty; its flowers are much larger than those of the type, and under a cover of some Fir boughs the plants have well withstood all the hardships of this winter. Miniature trees of *Daphne rupestris* grafted on *D. Laureola* now open their sweet scented Pimelea-like umbels of deep rosy blooms; when well furnished with flowers, these miniature trees are quite lovely. The double white variety of *D. Mezereum* has perfectly double flowers of good shape and imbrication.—MAX LEICHTLIN, *Baden-Baden*.

A Valuable Stove Shrub.—One of the most useful plants for cultivating in a stove is *Tabernaemontana Camassa*, an African shrub which bears, almost throughout the year, a profusion of pure white Gardenia-like flowers, and were it not for the absence of perfume, it would rival even the Cape Jasmine itself. The flowers in this variety are double, but the petals are not arranged in a bulky way, and they are produced in loose clusters terminating the branches. The foliage, too, which is of moderate size and of bright shining green, seems to set off the delicate beauty of the flowers to excellent advantage. The fact that it is almost a perpetual flowerer, besides being so prolific, is sufficient to recommend it for cutting purposes alone; even one large plant would yield sufficient for a moderate demand. In Mr. B. S. Williams' nursery at Upper Holloway it is largely grown, and flowers are being continually cut from it for bouquets and “button-holes.” The plants are grown in a warm and moist temperature, which seems to suit them perfectly.

The Yulan (*Magnolia conspicua*).—One of the most beautiful objects at Kew, and well worthy of its specific name, is a plant of this *Magnolia* near the Azalea beds, absolutely laden with pure white blossoms, which when the sun is shining fill the surrounding air with a delicious perfume. Close by is a plant of its variety, *Soulangeana*,

in which the flowers are tinged with rosy purple, and, judging by the specimen there, they are a few days later in opening. This variety is supposed to be a hybrid between *M. conspicua* and *purpurea*; it resembles the former in growth, but is scarcely so vigorous, while the flowers are more like those of the latter. At all events they are quite distinct, and two more beautiful objects at this time of the year it would be impossible to find. Some fine flowers of this beautiful Chinese tree have been sent to us by Mr. Roberts, Penzance, which shows well how this fine *Magnolia* thrives in the genial climate of Cornwall.

Rosemary-leaved Candytuft (*Iberis rosmarinifolia*).—This is one of the earliest flowering of the alpine varieties of Candytuft, and a very pretty aspect large patches of it have at this season in the rock garden. We saw the other day a large mass of it in flower on Mr. Stevens' rockery at Grasmere, where it seems to thrive capitally in a fully exposed position in a light sandy loam. The flowers are pure white, aggregated in close small heads, and the leaves, which are narrow, resemble those of the Rosemary, and hence its specific name.

Daphne Blagayana.—A small, but profusely flowered plant of this *Daphne* was shown the other day by Messrs. Osborn, who grow it finely in their nursery at Fulham. Its dense creamy-white clusters of blossoms, surrounded by a collar-like row of deep green leaves, are uncommon among *Daphnes*, and the fact that it is perfectly hardy, combined with the delicious perfume the flowers emit, considerably increases its value as a garden flower. It is a native of Styria, and has been in cultivation some two or three years. It succeeds as well on an open, well-drained rockery as anywhere, but it may be found useful as a pot plant on account of its scent.

The Spring Orobuchus and its Varieties.—We have lately had an opportunity of examining the various forms of *Orobuchus vernus* in Mr. Stevens' collection at Grasmere, Byfleet. Besides the typical form there are *tenuifolius*, with very narrow leaflets and flowers very similar to the type, though the general habit of the plant is more lax; *cyaneus*, by far the most attractive of all, being larger and possessing a strange intermixture of colours, some being a bright blue, others greenish-blue, and some with two or more distinct colours in the same flowers; *flaccidus*, a variety somewhat similar to *tenuifolius*, but brighter, habit of growth more dense, and the leaves not so narrow. Then there is a double-flowered kind and a pure white variety which seems to be yet rather scarce in gardens, though both are extremely desirable—the one on account of the lasting properties of the flowers, the other on account of its purity.

Tropæolum Hermine Grasshoff.—This was one of the most attractive plants exhibited at South Kensington on Tuesday last. It is a new double-flowered variety of *Nasturtium*, of dwarf growth, similar to that of *T. minus*. The flowers are perfectly double, the petals being arranged in a flat head quite 3 in. in diameter. The colour is a brilliant scarlet, which the deep green of the foliage seems to intensify. It promises to become a valuable plant both for cutting purposes and for ordinary pot decoration, as the flowers last long when cut. It is, we believe, Continental, but a stock of it is held by Messrs. Cannell & Sons, Swanley, by whom it was exhibited.

Scarce Hardy Flowers.—The following are some of the most interesting plants in flower at Mr. Riche's nursery, Tooting: *Ranunculus Trautmanni*, a lovely little species, with small deeply-lobed leaves, and solitary flowers about $\frac{3}{4}$ in. across, with pure white petals; *Saxifraga coriophylla*, *Vandellii*, *leucantha*, and *tombacensis*, the latter a very pretty species belonging to the aretioideis section, the flowers pure white, of great substance and size; *Anemone Halleri*, *Arabis ovirensis*, *A. Allioni*, *Armeria setacea*, a lovely little Thrift, with clear rose-coloured flower on stalks about 2 in. high. *Uvularia flava*, *Dentaria polyphylla*, *Androsace coronopifolia*, very handsome on rockwork.

Rhododendron Sheppardii.—The list of greenhouse kinds of *Rhododendrons*, though numerous, is being continually augmented by new comers, and this, we do not hesitate to say, is one of the finest additions that has been made for a long time. It is apparently a cross between *R. Veitchii* and *R. ciliatum*, as the flowers which are large and pure white, partake of the character of the former, while the foliage is similar to that of *R. ciliatum*. It is a very fine variety and seems to be free both in growth and blossom. A well-flowered plant of it was exhibited at South Kensington on Tuesday last by the General Horticultural Company.

Anemone apennina and Lithospermum prostratum.—These are now in flower here, and are certainly two of the brightest gems of the hardy herbaceous border, and well worth a place in the most choice mixed beds or rockery. I know of no other plants possessing such distinct and beautiful shades of blue as the two just named.—SANGUINEA.

Varieties of Flowering Currant.—Were this plant less common than it is it would receive more attention, for nothing at present in our gardens can excel it as regards attractiveness. The ordinary form is of course well known, but there are some varieties that well merit more extended cultivation, the chief of which are the double-flowered, which not only differs in being double and of a deeper shade of colour, but has the desirable property of expanding a week or so later than the ordinary form, thus considerably prolonging the season of the Flowering Currant. Remarkably deep tinted forms, almost a blood-red, are those called *Billardi* and *atro-rubens*, Continental varieties and very desirable on account of their rich tint. Then there are a few lighter coloured varieties, and one named *albida* is almost a white, the flowers only being suffused with a delicate blush. Another called *pallida* is somewhat of a deeper shade than the last, and one named *flavescens* with a decided suffusion of a yellowish hue is remarkably distinct from its companions. All these forms well merit cultivating, and a beautiful effect may be obtained when judiciously interspersed with other shrubs. Most of these varieties we saw in flower the other day in Mr. Stevens' fine collection of shrubs at Grasmere, Byfleet, which is now particularly attractive.

Golden Urn Flower (*Urceolina aurea*).—This handsome Peruvian bulbous plant is still classed among rarities despite its beauty and gracefulness. It has two broad oval leaves, from between which the flower-stalks rise about 1 ft. in height, terminating by elegantly drooping umbels of flowers of the purest yellow, with the exception of the tips, which are green. The shape of the flower is peculiar, more resembling an urn than anything else, hence its popular name. In the Victoria Nursery, Upper Holloway, several plants of it are in flower in a moderately warm and moist house, conditions which apparently meet its requirements.

Primula ciliata.—This lovely alpine Primula, the best of all the European kinds, is grown remarkably well in Mr. G. F. Wilson's garden at Heatherbank, Weybridge. A large plant of it (the same that was exhibited at the Auricula show on Tuesday) was profusely furnished with large clusters of rich carmine-purple flowers, each as large as a shilling. It was grown in a pot and afforded little protection in a cold frame placed on a stage close to the glass, and under similar conditions nearly all the hardy Primulas are grown very finely. *P. Munroi*, a species similar to *P. involucrata*, but with the flowers flushed with purple, was also finely in flower, as were likewise some fine plants of *P. cortusoides*, on which we observed some flowers having fringed edges, similar to some of the *P. amœna* or Sieboldi section. There was also in flower an interesting hybrid between *P. viscosa nivalis* and *P. ciliata*, the progeny being exactly intermediate between the two parents both in growth and foliage as well as in colour of flowers, which is a pale rosy-purple.

Rudgea macrophylla.—This is a noble stove plant, with large handsome leaves arranged in opposite pairs on stout, erect stems, which are terminated by a large dense cluster of pure white flowers of wax-like consistence, and in the bud state are elongated and club-shaped, but are star-shaped when expanded. Altogether it is a highly ornamental plant, and one well worthy of culture in a warm, moist stove, in which it thrives well, and flowers well every year. It is a member of the Cinchona family, and a native of South America. It may be seen in fine flowering condition in Mr. B. S. Williams' nursery at Upper Holloway.

Spring Bulb Garden.—Rarely have we met with such a fine display in spring as we saw the other day in Mr. Cobbett's garden at Weybridge Heath, where the large *parterre* on the lawn was aglow with the bright and varied hues of Hyacinths, Tulips, and other Dutch bulbous plants. The masses of these plants were uniformly fine, and the arrangement of colours harmoniously blended. The Hyacinths were particularly fine, a pure white with large spike and flower occupied a large bed; others had two shades of blue. Grand Lilas and another kind were extremely effective, as were likewise two shades of rose-coloured kinds in an adjoining bed.

Amherstia nobilis.—At the last meeting of the Royal Horticultural Society, some flowers of this splendid tropical tree were sent from the gardens at Chatsworth, which we believe is the only place in England in which it has flowered, with the exception of the late Mrs. Lawrence's garden at Ealing Park. The flowers, which are produced in long loose racemes, are of a singular shape; the petals are of a bright vermilion colour, save three of them, which have a conspicuous blotch of bright yellow on their lower parts. When on the tree they are pendulous, and, combined with the large pinnate foliage, are extremely effective. It is a native of the Malay Peninsula, whence it was introduced after several unsuccessful attempts by the late Duke of Devonshire.

Camellias Out-of-doors.—We have a very large Camellia growing outside under the back of a Pine house that has stood the last severe winter without injury, and is now supplying cut flowers in large quantities.—C. B., *Cork*.

Hardy Primroses.—A fine assortment of seedling Primroses, in various colours, has been sent to us by Mr. A. Dean, of Bedford, near Hounslow, which shows to what perfection these beautiful spring flowers have lately been brought. Every conceivable shade of colour is represented from that of the common Primrose to the deepest crimson—all obtainable from seed. Among them was one having a distinct violet, the nearest approach to blue that we have seen. "Jack-in-the-Green," too, is among the number, and very interesting it is with its large leafy calyx.

Single Roses.—Mr. George Paul sends us the remains received from Cannes by Mr. George Baker, of Reigate, of the Camellia Rose of Japan, which is likely to prove one of the prettiest of the single Roses. It will probably be of climbing habit and perpetual, but has glossy leaves like those of the Banksian.

Lonicera sempervirens.—This species, although introduced from North America some 200 years ago, is but seldom seen, and then rarely in a thriving condition; yet, as a conservatory climber, it is a really beautiful object; its bright scarlet flowers are now beginning to open, which they will continue to do till the end of the summer. A plant of the variety called *minor* is now in flower in No. 4 house at Kew.—

Sale of Mr. Day's Orchids.—The second portion of this collection was disposed of at Stevens' rooms on the 12th and 13th inst. The total amount realised in the two days was £1803 7s. 6d. Some of the more remarkable plants fetched high prices, among them being *Phalenopsis intermedia*, £65 2s., and another £45 4s.; *Cattleya exoniensis*, finest variety, with two leads, £50 8s.; *Dendrobium Schroederi*, £39 18s.; *Saccolabium guttatum* var. *Turneri*, £29 8s.; *Lælia purpurata*, £31 10s.; *Odontoglossum navium majus*, £24 3s.; *Cypripedium Spicerianum*, £26 5s.; *Saccolabium guttatum*, Burney's variety, £17 17s.; *Cymbidium Dayanum*, £11 11s.; *Lælia anceps* var. *rosea*, £15 15s.; *Masdevallia macroura*, £13 13s.; *Angræcum Ellisi*, £10 10s.; *Masdevallia chimæra*, £11 11s.; *Lælia elegans* *Turneri*, £9 9s.; *L. elegans alba*, £11 11s.; *Cattleya labiata*, £16 16s.; *Aerides Dayanum*, £10 10s.; *Lælia crispa superba*, £26 5s.; *L. elegans* *Wolstenholme*, £18 18s.; *Masdevallia Wallisi*, £11 11s.; *Aerides Schroederi*, £16 16s.; *Masdevallia ignea aurantiaca*, £21; *Lælia anceps alba*, £12 12s.; *Aerides affine*, £28 7s.; *Angræcum Chailluanum*, £15 15s.; *Saccolabium præmorsum*, £10 10s.; *Cattleya labiata*, £23 2s., and variety *Warneri* £9 9s.; *C. Skinneri*, £21; *Saccolabium guttatum*, fine variety, £23 2s.; *Oncidium splendidum*, £9 9s.; *Odontoglossum vexillarium*, six growths, £12; *Cymbidium Parishii*, £7 7s.

Gardeners' Royal Benevolent Institution.—Mr. Cutler informs us that the Court of the Grocers' Company have contributed the sum of 25 guineas to the funds of this institution.

MARKET GARDEN NOTES.

Vegetables.—Although there is now abundant evidence in market gardens that the spring has arrived, yet it is not pleasant to find just in the middle of April a keen cold east wind blowing and frosts imminent, whilst the soil is so parched that it is most difficult to get crops in, and very hard for those in to get through. Early Peas would seem to be out of the question this year; the earliest sowings are not more than 2 in. in height and not growing fast. Warm nights and rain are needed to force growth. As Peas are almost the first of the summer vegetables, the present aspect of garden ground shows that as soon as the Turnip-tops and Sprouting Broccoli are gone, there must be a long interval between the conclusion of the season of winter Greens and the coming in of summer vegetables. No doubt foreign productions will do much to supply the deficiency in towns, but the rural resident gets little benefit from such imports. We have an immense deficiency in our market supplies of green vegetables produced solely by the terrible winter weather through which we have passed. Some may, perhaps, be ready to declare that our general lack in this direction is due to the deficient quantity grown, and will recommend farmers to grow green material for market. This, however, would be the height of folly, as even market growers themselves are nearly bankrupt through hard times and unfavourable seasons.

Fruit Trees.—Looking over the various gardens where fruit, flowers, and vegetables are cultivated, I note that no injury has been done to Apples and Pears as last year, but many trees have not yet recovered the shock then given, and will take several years to become what they once were. But on the healthy trees the promise of bloom is magnificent. Some of the earlier Plums have burst, and are smothered with blossom, whilst the later ones are full of bloom buds. Here and there a Prince of Wales, that most useful, yet uncertain, of Plums, is dead, thus leaving a blank that it will take several years to fill. It is after all, for that reason, rather a Plum to

avoid than encourage. No Pear bloom is yet out, although it is the 18th of April, a remarkable circumstance, and one that may make us hopeful that all the danger from frost will be past before the whole is expanded. A change to milder winds will soon expand it. The blooming of the Apple trees next month will be a sight to be seen and rejoiced over. The rich hues found in the blossoms of many kinds furnish colour that no other hardy fruits give. Very much interest, however, centres in the bush fruits, the Gooseberries especially. Where there is a large breadth of bushes, these often become the backbone of the growers' season, for as a rule the fruit, whether green or ripe, gives a profitable return. The immense quantity of bloom just now indicates rather too many fruits, but at least, if such is the case, the practice of gathering it in a green state enables the grower to correct the generosity of the season. Black Currants are heavy with bloom; so also are Red Currants. Morello Cherries will presently be a beautiful sight.

Wallflowers.—The present aspect of many patches of Wallflowers denotes the disadvantages that result from too early planting if the winter is hard. Late got-out breadths have stood fairly well, but early ones have suffered terribly even where the trees have partly sheltered them. Where the great object of the grower is to get very early bloom, in fact winter cuttings, he does not mind the risk of early planting, for flowers when they turn in very early are worth twice as much as they fetch now when there is a glut. Saturday morning last was a veritable Wallflower fair in Covent Garden, the quantities sold being enormous. After Easter the sale declines, but, further still, the colour fades. This is one of the evils resulting from late planting, for defective colour means a reduced price. For this reason a hot sunny day in April is unwelcome. When there is a good season and the winter merciful, Wallflowers prove to be a good paying crop.

Violets and Narcissi.—A wise man will not confine himself to one particular garden crop. Flowers, fruit, and vegetables furnish more straws to save a business from loss than do fruits or vegetables alone. The chief out-door flowers grown in bulk are Violets, which, by-the-bye, have not been over profitable this season owing to the long prevalent east winds and frosts. Wallflowers and the pretty Pheasant's-eye Narcissus, wherever they are grown, need more shelter from east winds than can be found in open expanses. If ever the need for shelter has been found, it has been during the past few weeks.

A. D.

Dividing Primroses.—I read Mr. Dod's notes (p. 389) as usual with much interest, but I was somewhat surprised to see that he says that Primroses "never do well after division." I have always thought that division was the only way of keeping good sorts, for old plants soon dwindle, and I have now covered with bloom in my little garden here some coloured Primroses which I divided last May. Moreover, it is, I believe, usual with Auricula growers to divide their plants, and as they belong to the same family (Primulaceæ), I should have thought that results would have been the same in both cases. Sowing seed every year with the after pricking out, &c., gives much more trouble than propagating by division, besides, by the latter method one can keep favourites.—W. J. T., *Briatton*.

EDITOR'S TABLE.*

The Chilian Crocus (*Tecophylæa cyanocrocus*) is a fine novelty that comes to me from M. Max Leitchlin, of Baden-Baden, the first flowers, I believe, that have been seen in England. It is a lovely blue flowering dwarf bulbous plant, which will in due time be figured in THE GARDEN. In any other way it would be difficult to give an idea of its beauty and novelty. The Latin name is not a very charming one, and perhaps an English one such as the above may be helpful to those who do not remember easily such terms. From what I can judge from the flowers sent the advent of this plant will be a red-letter day in the annals of our hardy flowers.

The shrub that never fails to show its cheery handsome flowers is the Japanese Quince (*Cydonia japonica*), best known in its scarlet form. It is worth remembering that there are various forms of merit raised on the Continent besides the very good white one. The salmon and peach coloured forms are pretty for cutting, as, indeed, they all are. In the recent long-continued east winds it was pleasant to see the handsome effect of this shrub combined with the Forsythias and relieved by some Ivy drapery near.

* I shall be grateful for specimens from northern or elevated districts, and those in which plants come into flower much later than in the southern and midland counties.

The Daffodils seem at last to be taking their true place as the most precious of our spring garden flowers for cutting, and for many kinds of indoor decoration, and they are worn in brave bunches, as they deserve to be. Out of doors they are no less valuable for those who know how to use them, the colour being so good, and the flowers regardless of the weather. That fine sight—a colony of Daffodils in bloom—which one may see now and then in quiet country places, might easily be made a pleasant feature of park or home landscape scenery, so to say. What is tolerated on a farm should not be in the way in a park. The great variety in the family gives us a prolonged season and new and graceful forms. *N. odorus*, the large Jonquil, deserves to be largely increased as one of the best of the vigorous and distinct forms. It seems to grow without care.

*

Mr. Poë, of Nenagh, sends me an *Anemone*, bright scarlet, with an amber ring in the centre. He says that it was gathered some time since on the Lemon terraces at Mentone, and called by Mr. Moggridge, *fulgens ocellata*. It has stood the severe winters of the past three years with the temperature down to zero, and has established well and flowered profusely. It seems to me to be near to the Poppy *Anemone*, but in any case is a beautiful and distinct kind which would be charming in bold tufts or groups.

*

I saw a cottage garden in Sussex the other day brightly furnished with various forms of the common garden *Anemone* (*A. coronaria*) only. Why should such a valuable plant be so little grown? Few of the flowers of spring give us so good a return for a little care. There are splendid varieties of this plant which should be marked and increased. Apart from the old doubles, the fine race of semi-doubles—French in origin—the *Chrysanthemum*-flowered sent by M. Guibeneuf recently, there is, in fact, quite a spring garden among the forms of this one species of *Anemone*.

*

From Mr. Stevens comes a handsome deep rosy form of the flowering Currant, which is a great improvement on, or rather a useful addition to, the old kind—one of the most charming of our flowering shrubs which is seldom treated so well as it deserves to be. What I mean is, it comes in for starvation and crowding in the choke-muddle shrubbery. The natural outline of well developed plants, singly or in groups, is good, and should be seen. The first of the Pea flowers is the handsome spring *Orobis* (*O. vernus*), and it forms a valuable plant. What use they may have as cut flowers I do not yet know. The whole question of hardy flowers in relation to indoor embellishment, or for cutting, is an important one that has not yet had any attention to speak of. A small amount of ground well cultivated and planted with a judicious selection of plants succeeding each other would afford cut flowers for nine months out of the twelve of beautiful kinds and in abundance. Such an arrangement would not be necessary where the plants are already abundantly planted. Where this is not the case, a good plot for cutting is well worth attention. It should not be near tree roots; many fine things are never seen in proper condition owing to their being planted near and half under trees. Welcome and beautiful are the earliest flowering shrubs and trees of the great fruit tree order, such as the double Sloe and the earliest Cherries, and also the first bush *Spiræa* (*S. Thunbergi*) and the almonds and the buds of the early double Peaches; these early flowering trees and shrubs are so important in the home landscape, so capable of giving us bright and cheerful effects in early spring, that it is worth our while to take care of the best and hardiest kinds. Plums and Pears are of course among the most beautiful of such trees, though seldom thought of from this point of view, or placed so that their effect will tell in the garden landscape in spring. The earliest Crimean *Iris* (*I. pumila*) about London reminds one how poor it is generally in the London district, although a bright, fine plant in many light and peaty soils in the country. The earliest evergreen *Candy-tuft* (*Iberis corifolia*) is also welcome. These are plants that never seem to fail anywhere, only asking for plenty of light and exposure, and not liking crowding. They do as well as an edging in a rough London park as on the choicest rock gardens. The earliest of the great yellow Daisy-like flowers are those of the *Doronicum*, a vigorous border flower which could probably be naturalised.

One of the most welcome bunches of flowers I have had for some time comes from Mr. G. F. Wilson, and is remarkable for containing some lovely North American spring flowers, some of which are shown in the accompanying illustration from "Pastoral Days." Chief among these is the singularly beautiful little Mayflower of New England (*Epigaea repens*) and the Northern States. This little creeping shrub, with an

Arbutus-like leaf, has been tried in our nurseries and botanic gardens at various times, but in the American nurseries at Bagshot, where peaty shrubs do so well, it only dwindled. When



American Spring Flowers.

and the little pink buds, while it has the most refined and agreeable odour. Than this there is hardly any plant which a cultivator might be more pleased to establish. As generally seen, it looks starved. Probably the dozen flowering sprays before me are the best that have ever come near Covent Garden, and remind one of the bunches of this sweet flower which the American children go out to gather in its flowering season. Probably the sweet breath of the flower, resembling

somewhat that of the Hawthorn, caused the early settlers to give it the name it bears. With it came the large star-like flowers of the Blood Root, which is an evanescent plant in the border. The flowers sent now are the finest I have seen, being over 2½ in. in diameter, of a peculiarly bold star-like form, white on the inside and delicately netted with pink on the underside. It is one of those flowers which last but a short time in the bare border, but which, naturalised in groups or colonies under or near deciduous trees, would afford a brilliant and charming aspect of vegetation in the early year. Then comes our little friend the yellow American Dog's-tooth Violet, a rich yellow, with dark spots towards the centre, and which well deserves attention for its colour and distinctness from the common Dog's-tooth Violet. It is growing in the wild garden in a woody place, a situation in which it occurs by myriads in America. When understood, it will

prove a beautiful wild garden denizen. Ordinary culture in a border seems to do little with it. I have been watching for years to see it bloom freely, and I have never had half-a-dozen blooms on my table before. In shrubberies in the Central Park, New York, the roots were as thick in the ground as those of our lesser Celandine often are in our woods. It will be found in time that the wild garden has many cultural advantages, or, in other words, that many things can be grown in it better than in the open borders. The beautiful old Virginian Lungwort (*Mertensia virginica*) comes too, a most elegant flower, another plant of the old borders which gradually perished from these, being in nine cases out of ten quite unsuitable for them. Its delicate blue buds and flowers

will undoubtedly be found most welcome in the spring garden to those who appreciate the variety of beautiful flower-life that abounds at that season. Who has ever made a worthy spring garden? So much can be done with a few things, *Arabis*, *Aubrietia*, and the like, that many are content with these, and do not think of the crowds of lovely plants that flower at this time of year, differing much in form, colour, fragrance, and habit, and by their associations taking us, as these few flowers from Mr. Wilson do, to far-away regions having a beautiful flora distinct from our own. Next we have the *Trillium*, or what I call the American white wood Lily, assuredly one of the most singular and beautiful plants we have. Here, too, is a plant vigorous in free or leafy soil in a woody or shady place, poor in a border.

A splendid velvet-crimson Primrose, a variety of our common English Primrose, is sent with these. We must all hope that these rich coloured Primroses may be rapidly increased, and not lost in the usual muddle-mixture of our borders. I was pleased to see the other day in the gardens at Battle Abbey a colony of lilac Primroses, planted gracefully under a tree by the Duchess of Cleveland, as illustrating what I have long advocated as so desirable to secure the full expression of the beauty of a plant. Just consider what could be done in this way with varieties of Primroses alone. Let us have mixed borders by all means, but an endless series of beautiful pictures can be added to our gardens at all seasons which hitherto have not been thought of. The rule has been the muddle-mixture, a purely garden

aspect of vegetation never seen in Nature. The rule is that one or few things tell in one place, and are succeeded by others to tell their story equally clearly. In the northern Italian mountain meadows the bright rosy smooth-leaved Primroses stain the turf with splendid colour early, and when they pass up comes the St. Bruno's Lily, with its graceful white bells tipped with green, and it is seen all over the meadow Grass, but each tells its own story in its season. Splendid are the large golden satin-like flowers of the spring Adonis, with flowers 3 in. across, blossoms which should set the aesthetic Daisy lovers of our time at work with their needles or brushes. Right welcome are the Grape Hyacinths (*Muscari*)—white, and pale sky-blue, and purple. I saw some large bunches of the common kinds in Covent Garden, crushed into jugs, looking curiously pretty. These Grape Hyacinths have never yet had a space worthy of their merits; they grow almost anywhere, and they should be so grown that they would not require any particular attention from the gardener. Once established, it would be pleasant to gather them in quantity for cut flowers. They spread about freely in any ordinary soil.

The Glasnevin Gardens at Dublin have long been the home of many fair spring flowers, and many must be pleased to see Mr. Moore keeping up and adding liberally to the collection gathered during so many years of active work and travel by his late father, Dr. Moore. He sends me those delicate Barrenworts (*Epimediums*), seldom well grown, which are, nevertheless, worth a little study. They seem to like the climate of Ireland, and they do best in peat in bushy or half shady places. The yellow one, I think, is the strongest and handsomest; also the noble Fumitory (*Corydalis nobilis*), the smaller Fumitory, the earliest summer Snowflake, the Snake's-head, the later Hellebores, the pretty white Buttercup (*Ranunculus amplexicaulis*), the white alpine Primrose, and some of the European Lungworts, which are very hardy and profuse in their purplish flowers.

Mr. Moore also sends *Rhododendron Aucklandi* with large white fragrant flowers, the flower-buds tinted with pink. It is a more compact grower than some of the Himalayan kinds, and is no doubt hardy at Dublin; he speaks of the beauty of *Brownea Ariza*, a showy stove shrub, and of a pink form of our native wood Sorrel as the prettiest little plant in flower in the open garden at present.

Spring Buds for Sick Rooms.—All watchers by sick beds have observed the eager longing of their patients for flowers and green foliage, and the intense pleasure they derive from them. A very simple and inexpensive way to gratify this wish occurred to me a week ago while watching the swelling buds of trees, and which I at once put into practice. Having cut sprigs from 12 in. to 18 in. long from the lowest lateral branches of various trees, I arranged them in a group, in a small terra cotta vase filled with water, which I placed in a room 12 ft. by 9 ft., and although this small room was lighted by gas, and the window seldom opened during the continuance of the bitter easterly wind, the buds not only kept fresh and green, but increased in size, while those out of doors made scarcely any visible progress. The buds of the Horse Chestnut are especially interesting and beautiful, and although they were only bursting from the numerous scales in which they were enveloped when I took the sprig from the tree, the leading bud has in seven days produced four vigorous leaves on a stem 5 in. in length. How easy it would be in this way to gladden a wearied sufferer who has only bare walls within sight, and by means of a few sprigs of growing buds and green leaves, bring him or her into concord with the cheering influences of the spring.—W. B. S.

Wallflowers and Roses.—Permit me to thank various readers of THE GARDEN for their kindness to me. Only a few days elapsed after proclaiming how cruelly the frost had hit our Wallflowers, till packages of plants and cuttings began to arrive. As an illustration of the generous character of the craft, these were mostly carriage paid. May I specially name for their distinguished liberality Mr. James May, of Broxbourne, and Mr. Chitty, of Chichester. I should like also

to thank the Count de la Torre for his *Roses Sulphurea* and the Wild Rose of Portugal, which has proved as hardy as our own Dog Rose this terribly severe winter. We like it much as a stock for dwarf Roses. The *Sulphurea* does not expand well in the open, but when it does, it is a beauty, a real golden Cabbage Rose.—D. T. FISH.

THE FLOWER GARDEN.

SPRING FLOWERS AT GLASNEVIN.

THE rains which we have had during the past few days have induced many flowers to open which were unable to contend against the severity of the east winds which prevailed so long, but which have at last disappeared. Amongst these, the following deserve special notice: *Andromeda calyculata* is a very pretty little shrub, with long slender branches, thickly beset with numbers of white urn-shaped pendulous blossoms, while the leaves stand erect on the upper side, thus showing off the flowers to advantage. The two best varieties of *Narcissus* open are *N. bicolor* Horsfieldi and *N. Macleayi*, the latter a dwarf counterpart of the former; both have bright yellow coronas and almost white perianths, a very effective combination. *Primulas* can now be counted almost by the dozen. *P. decora* alba, a dwarf free flowering variety of easy culture, bears pretty white heads of flower. Its type (*P. decora*) possesses all its good qualities, but has flowers of bright magenta colour, which remain long in perfection. *P. pulcherrima* is the finest of those now in bloom. It is quite hardy, some plants that have been wholly unprotected being now furnished with many large round heads of flower very deep in colour and borne on strong stalks well above the foliage. It cannot be too highly recommended. *P. glaucescens* is another excellent little plant; it is very dwarf, the shining little leaves margined with a narrow white line, lying quite close to the ground. The flowers, compared with the size of the plant, are large and of a delicate mauve colour. *Corydalis bracteata* is a pretty species. Each of the flowers is subtended by a large green bract, which gives to the plant a well furnished appearance. *C. nobilis*, a scarcer and finer plant, has large much divided leaves and fine bold heads of golden-yellow flowers, with a black blotch in the centre. It is much the finest of all its congeners. Amongst *Epimediums* the same may be said of *E. colchicum*. Large tufts that have been long undisturbed are covered with racemes of bright yellow flowers. It is, in fact, a very free flowering counterpart of *Oncidium ampliatum*, but does not require stove treatment. I will only specially allude to two more of the plants included in the appended list, and these are *Rhododendron chrysanthum* and *Erythronium grandiflorum*. The former, one of those old-fashioned species with small *Azalea*-like leaves, cinnamon underneath, bears small heads of almost transparent whitish-yellow flowers, and *Erythronium grandiflorum* is the best of its class in cultivation. Its flowers, which are yellow, with delicate red markings at the base of the petals, are borne generally two on a long, stout peduncle. The foliage is also very pretty, being prettily mottled.

List of some plants which flowered at Glasnevin since March 26:—

<i>Andromeda calyculata</i>	<i>Fritillaria i. variegata</i>	<i>Primula glaucescens</i>
<i>Adonis vernalis</i>	<i>præcox</i>	<i>pulcherrima</i>
<i>Anemone nemorosa</i>	<i>Gagea lutea</i>	<i>Muretiana</i>
<i>apennina</i>	<i>Helleborus argutifolius</i>	<i>Pulsatilla vernalis</i>
<i>ranunculoides</i>	<i>Leucocjum pulchellum</i>	<i>Ranunculus amplexicaulis</i>
<i>Cydonia Gaijardi</i>	<i>Muscari Heldreichi</i>	<i>montana</i>
<i>Corydalis bulbosa</i>	<i>Magnolia conspicua</i>	<i>Saxifraga sedoides</i>
<i>cava</i>	<i>Narcissus odoratus fl.-pl.</i>	<i>cæspitosa</i>
<i>bracteata</i>	<i>bicolor</i>	<i>diapensoides</i>
<i>solida</i>	<i>b. Horsfieldi</i>	<i>Cymbalaria</i>
<i>nobilis</i>	<i>maximus Emperor</i>	<i>retusa</i>
<i>Corbularia Graellsii</i>	<i>m. Empress</i>	<i>geranioides</i>
<i>Erythronium grandiflorum</i>	<i>incomparabilis</i>	<i>Smelowskia alpina</i>
<i>Epimedium colchicum</i>	<i>Orobis alpestris</i>	<i>Sanguinaria canadensis</i>
<i>rubrum</i>	<i>Primula purpurea</i>	<i>Tulipa triphylla</i>
<i>Euphorbia epithymoides</i>	<i>decora</i>	
<i>Fritillaria imperialis</i>	<i>d. alba</i>	

F. MOORE.

PHYTEUMAS.

ALTHOUGH the Rampions are not such showy members of the Harebell family as their typical brethren, they are yet pretty, neat, and interesting. Their flowers are produced in either globose or elongated heads, and make up their want as regards size by number. All of them enjoy a sunny position. Some make capital rock plants.

P. orbiculare is a rare and very desirable native. It elevates its flower-heads 1 ft., and should accordingly be classed amongst plants for the front rank of the border; but from a cultivator's point of view it is better grown among rock plants. It would then be free from the destructive effects produced by the use of the hoe and rake. It is extremely impatient of removal or division, and

should be raised from seed sown in autumn in a cool frame. It flourishes in a dry position on the rock garden amongst a mixture of limestone grit, peat, and sand and loam. The flowers, which are violet-blue, are produced in July.

P. Sieberi is a very desirable and neat plant for the moist, but sunny parts of the rock garden; it does exceedingly well in a mixture of nothing but leaf-mould, peat, and sand. It forms cushion-like tufts, and produces abundance of dark blue flower-heads on stems from 4 in. to 6 in. long in May and June. It is increased by division.

P. humile.—A capital rock plant having a neat tufted habit; requires a dry, sheltered position in winter, but should be liberally supplied with water in summer. It is not so neat as the last, and a little larger in all its parts. The flowers, which are blue, are produced in June on stems 6 in. high. It is increased by division.

P. comosum is an extremely slow-growing plant, and requires to be carefully watched or a big slug will do considerable damage in a single night. There is not much of beauty about it, but it is very interesting and a genuine rock plant, suitable for a vertical or sloping fissure to the sun. It does best amongst a mixture of peat, sand, or grit, with a little loam, where it can root to the depth of 2 ft. Its almost stalkless flower-heads of dark



Phyteuma comosum.

purple flowers, setting amongst nearly sessile, dark, Holly-like leaves, need to be carefully looked for, or the plant may be passed by by a casual observer without being noticed. It flowers in June and July, and is increased by means of seed.

P. Charmeli and **P. Scheuchzeri** are too nearly allied for the pair to be in the same garden, except for purposes of comparison. The leaves in **P. Scheuchzeri** are lanceolate, and in **P. Charmeli** cordately lanceolate. The latter is dwarfiest in habit; the flowers are borne on stems varying from 6 in. to 12 in. in height, and are of a pretty blue colour. It is evergreen, and must be increased by means of seed sown in autumn. It cannot be divided.

Hatfield.

T. D.

DWARF NASTURTIIUMS.

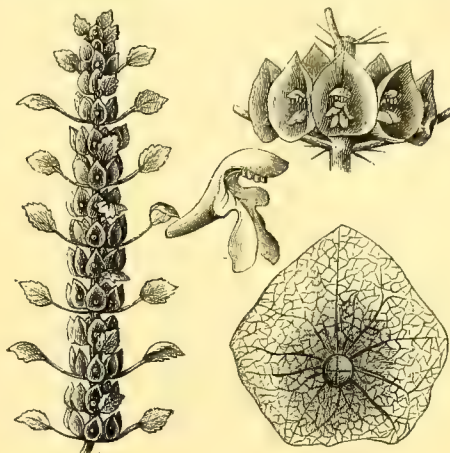
THESE little brilliant-flowered, summer-blooming plants get all the attention they deserve from some, but plant lovers in general appear to neglect them. Probably but few summer-flowering subjects give so great a return for so little labour and expense. In the case of some varieties it is perhaps better, if possible, to propagate by means of cuttings, as the stock is then maintained in all its integrity. In a general way, however, this special treatment is by no means necessary, for there exists many fine kinds, remarkable for a dwarf, compact, habit, profusion and brilliancy of bloom, and which come wonderfully true to character when the seed is obtained from a reliable source. Those who have the command of heat may sow in April, putting a single seed in a small pot, hardening the young plants off in the usual manner, and planting out about the middle of June, quite early enough, for the Nasturtium is easily injured by frost. Those who may not be able to, or do not care to, sow early may commit the seeds to the open border in May, where they will come up freely enough. Of course, I need scarcely tell your readers

that these dwarf Nasturtiums love the sun, and do not care to find themselves in soil of too rich a character.

J. CORNHILL.

MULUCCELLA LEVIS.

THIS singular hardy plant is a member of the Labiate, or Dead Nettle family. It is by no means showy, and the only recom-



Muluccella levis.

mendation it possesses as a garden plant is the singular form of the calyxes, which are shallowly bell-shaped and arranged densely on erect stems 1 ft. or so in height. It is a remarkably fine specimen for skeletonising, and the stems, bracts, calyxes may be done intact. For this purpose they should not be cut before autumn, when the plant is fully matured. It is a native of the Eastern Mediterranean, and requires to be treated in a similar manner to ordinary half hardy annuals, a class to which it belongs.

W. G.

RHEUM RIBES.

THIS is by far the rarest of the cultivated Rheums or Rhubarbs, and is far more distinct than most others, the chief points of distinction being the much smaller leaves, the wart-like excrescences on the leaf-stalks, and the succulent red fruits produced on the much branched stems. It is a somewhat difficult plant to cultivate, but it succeeds best in a good loamy soil in well drained and fully exposed borders. It is a native of alpine and sub-alpine districts in



Rheum Ribes.

Palestine, Arabia, Persia, and Kurdistan. It is not now in cultivation in this country, but seeds of it may be obtained from Messrs. Haage & Schmidt, Erfurt.

W. G.

The Calandrinias.—I am pleased to see special mention made of these pretty little hardy flowers. They do not appear to be much

grown, but they would receive greater attention than they now get were it more generally known how well they thrive in sandy, hot, porous soils. According to my experience, it is just there where they are most at home, and I have seen *C. umbellata* looking quite happy, and creating a pleasing effect when planted in soil so light, poor, and parching that very few flowering plants could be induced to live in it. It is quite true that the *Calandrinias* do not like to be transplanted, and this is probably the reason why they do not always give good satisfaction, for, generally speaking, they suffer so much by the operation as to diminish their effectiveness to a serious extent. Sow them where they are to remain, thinning out to about 8 in. apart, and they quickly grow into nice plants. Whoever may have soil of a dry, sandy nature to deal with will find a useful auxiliary in the *Calandrinia*.—J. C., *Byfleet*.

Spiræa Ulmaria and its Varieties.—The golden and silver Queen of the Meadows are two of the most beautiful of British plants found in a variegated state, but they cannot be raised from seed; out of thousands not one will probably show any sign of the beauty of the parent plants. They may, however, be increased by division annually. A moist cool place should be chosen for them away from the full glare of mid-day sun.—W. ELLIOTT, *Deepcar*.

Calla Lilies in Water.—The first plants of these I ever saw were grown in water, and I have never yet seen any healthier or that flowered more freely. Unless the tub is very large, it will not be of much use to attempt to grow other plants with the *Callas*, as they root so freely in water, that they speedily fill the tub. Perhaps a few common Cresses or white Water Lilies ought to be able to hold their own with the *Callas*, and hang over the sides of the tub and so far cover it; or the tub might have rough bark tacked on to it, and *Lycopodiums*, dwarf Ferns, and the creeping *Tradescantias* be thus made to cover the outside of it, and so render it as beautiful as the inside.—D. S. F.

Propagating and Growing Wallflowers.—It is at this time of the year, especially when sweet-scented cut flowers are a necessity, that Wallflowers are so keenly and generally appreciated. They are, however, at all times and in all seasons deliciously fragrant and always welcome. How best to obtain a supply becomes, in view of the past severe winters, an important question. Though thousands were killed or partially injured with me, a large stock still remains of double and single purple, the former tender and very scarce, double and single yellow (self) and the large family of striped kinds. Any or all of these are at the disposal of your correspondent, Mr. D. T. Fish, of Hardwicke, to whom I feel in many ways indebted. Cuttings or side shoots will be transmitted later on. I propagate as soon as either can be had plentifully, also from seed of any favourite variety. Cuttings are more dwarf, bushy, and I believe hardier. Remove or lift a few times to attain this desirable bushy habit in the case of seedlings. Cuttings grow dwarf and bushy enough.—W. J. M., *Clonmel*.

A New Ivy.—I have found a form of the common English hedge Ivy certainly a shade or two deeper in colour than *Hedera densa aurea* or *H. spectabilis aurea*. It is a capital grower, and was found by me at Stanton-by-Dale, in Derbyshire, creeping up an old Thorn stump. I think it will be a good addition to this already numerous and useful family of plants.—W. ELLIOTT, *Deepcar*.

Primroses and Polyanthus.—I send you a number of blooms of hardy Primroses, Polyanthus, and that intermediate breed which are Primroses first and Polyanthus later on. These flowers are gathered from plants the majority of which are blooming for the first time, and which were raised from seed sown during the summer of 1879. When persons complain that they cannot get a good show of flowers from hardy plants early in the year, I take it for granted that they have none of these beautiful plants in their gardens. Yet there are thousands of gardens more favoured than mine for the early production of these Primroses, for our soil is a cold, stiff clay, saturated with water in winter, and baked to the consistency of bricks in summer, and indeed is now, whilst the east winds have been sweeping over the plants uninterruptedly for weeks. Worse soil or a colder situation they could hardly have, and yet these plants have been more or less in bloom for the past six weeks. Some of the hybrid Primroses are the earliest, and the true Polyanthus the latest. The colours and markings defy description, but are wondrously varied and beautiful. Some of the dark hues of claret, maroon, crimson, and purple are novel and striking, and I do not despair of obtaining in time a veritable blue kind. One great point in reference to these flowers is that they may all be got from seed, which I generally sow as soon as it is ripe, as by keeping the seedlings in a cold frame all the winter many of them bloom the following spring; besides, I have more time to prick out the seedlings in autumn than in spring. On the other hand, seed sown now in pans under glass will produce plants that will flower freely next

spring. Without winter protection no border plants can be hardier few, if any, more beautiful, and none more easily raised and cultivated.—A. D.

Grouping v. Dotting of Plants.—In utilising hardy plants, we must by some means get out of the well-worn track of straight lines and dotting in the case of many of the best subjects; for instance, the early flowering Aconite, Snowdrops, or Scillas that afford but little effect in ordinary borders are simply lovely when seen in well established irregular clumps or masses, and the same may be said of the taller vegetation to which the above would form a groundwork. The early *Daphne Mezereum* makes an exquisite group, especially on Grass or in the foreground of a shrubbery, whereas if dotted along the margin its effect would be lost; at present *Ribes sanguineum* is very showy treated in the same manner, and much more floriferous than when crowded amongst evergreens of the ordinary type. I feel sure, indeed, that by judicious planting, our shrubberies may be made to yield far more interest than ever they yet have done, for when indiscriminately planted, the strongest growers soon overpower the weaker ones, and in a few years nothing is left but the ordinary mixture of Laurel, Box, and Aucubas; whereas if grouped so that each could show its full effect without interfering with its neighbour, there would be no fear of losing the weaker growers, which, under the friendly shelter of those that are more robust, would find a congenial home. We have lately had a long continuance of east winds, and spring flowers in open beds or borders have made but little headway against it, but under the shelter of shrubs or trees they have been exquisite.—J. GROOM.

ORCHIDS.

HARDY CYPRIPEDIUMS.

THESE are plants grown comparatively by few, and therefore rarely indeed can a healthy collection of them be seen in cultivation. For my part I would travel a long distance to see an established



Cypripedium macranthum.

plant of *C. irapeanum* growing and increasing in size, or healthy plants of *C. arietinum*, *C. guttatum*, and even *C. macranthum*. All these are difficult to cultivate, or at least to have them in a flowering condition. I have tried them in many descriptions of soil, and I find that some species succeed in peat while others do well in good loam from the limestone formation. Much may be learned by observing how the plant behaves in a wild state. A plant that is found growing naturally in wet peaty soil is not likely to thrive in loam containing lime. *Cypripedium spectabile* and *C. irapeanum* come to us as they are dug out of swampy, peaty soil, some of which may be found adhering to their roots. They seem to be exactly alike as far as their natural requirements are concerned, but I have bought clumps of each as imported, potted both in peat, and treated them in the same way, with the result that *C. spectabile* grows, thrives, and flowers freely, while the other dies outright. If any reader of THE GARDEN could give directions for the successful culture of *C. irapeanum* I would for ever feel grateful.

C. spectabile must stand at the head of the list, not only as the best of the hardy Lady's Slippers, but the best of all of them. I grow it in pots entirely in sweet turfy peat, with a little decayed stable manure added. The pots are filled half-full of broken potsherds, and on the surface of the soil is planted green Sphagnum

Moss. While the roots are dormant, sufficient water is given to keep the compost just moderately moist, but when growth begins it is applied rather more freely. The best growths are made when the leaves are partially shaded.

C. pubescens.—This variety also succeeds well if a little loam is used with the peat in potting. It grows and increases very freely. The rich yellow lip is a striking feature in this hardy plant.

C. Calceolus is a very desirable species, well adapted for pot culture. It increases rapidly in size, and may be propagated very freely by dividing the crowns when the plants are in a dormant condition. It succeeds well in soil composed of equal parts loam and peat.

C. acaule is also a desirable species for pot culture. The curious formation of its large rose-tinted flowers is very interesting. I have never been able to increase the plants in size, like

in pure peat and kept only moderately moist. I have some hope of seeing its flowers this season, as the growths are strong.

C. parviflorum.—Here this has been given the same treatment as *C. spectabile*. It grows very strongly every year, but does not increase in size, and I have not yet seen its flowers. Probably it may have been too much in the shade. This will be altered this year, and probably the plant will flower, as it is exceedingly strong.

We have grown altogether eleven species of this hardy section of terrestrial Orchids with more or less success during the last ten years, and those that I would recommend as likely to give the greatest satisfaction are *C. spectabile*, *pubescens*, *Calceolus*, and *acaule*, all distinct kinds which will flower freely annually in an ordinary greenhouse, pit, or frame. I think they also do best if green Moss of any kind is kept growing on the surface of the soil.

J. DOUGLAS.



Cypripedium acaule.

C. spectabile.

C. Calceolus.

the three just named, but they throw up a strong stem, producing one flower from the same place annually.

C. macranthum is not so easy to grow as some of the others. I have one plant of it that has increased in size. The first year of its growth it had two stems; now there are four of equal strength, and I hope this plant will flower this year. Out of a few dozens of strong imported crowns it is not difficult to flower a few of them the following season, but no one can lay claim to any cultural skill in doing this, and it is only after growing and flowering a plant for some years in succession that a person ought to speak with any degree of confidence in regard to it. I have now got this plant established in good, loamy soil, with a little leaf-mould added to it, and hope, after several seasons' growth, to be able to flower it. It is a fine Orchid, and ought to be perfectly hardy.

C. japonicum is a singular species not usually amenable to artificial culture. I have one plant of it that came with a single growth three seasons ago; now it is making its third season's growth and throwing up four strong shoots. This species is potted

Wallflowers and the Winter.—Our case here is not so bad as that of Mr. Fish at Bury St. Edmunds, for whilst the yellow kinds, especially the dwarf Belvoir yellow, have not suffered, the dark red kind has suffered to the extent of about one-sixth in the open and not at all amongst bush fruits. The latter kind is got out so early, that the plants are often pushing buds before Christmas, and in good soil are full of growth. Constant selection from the earliest blooming, as well as the darkest flowered, has brought about this precocity, and in very hard winters the plants pay the penalty. I have a large piece, of some 20 rods or more in extent, now in full bloom, and my bees seem to find on the flowers a large store of pollen. All but the darkest coloured flowers are pulled out to keep the strain good. Seedlings are late this year, as, owing to the hard weather, it was not possible to sow early, and when sown, the cold winds prevented germination. In mild winters, seed is sown as early as January, but this year none was put in till March. As to doubles, I have been so far fortunate as not only to save a good stock of the dwarf yellow, putting in cuttings in October, but have had sent me by a correspondent from Cheshire plants of the double brown

and purple, which I trust may prove to be identical with the so-called black of earlier days. I have also had cuttings of the double yellow.—ALEX. DEAN, *Bedfont*.

THE INDOOR GARDEN.

LAPAGERIAS, RED AND WHITE.

THE effect of these mixed is most charming, the one helping to show the other off to advantage. The situation these Lapagerias like best is a shady wall in a cool conservatory or greenhouse, where if planted in properly prepared borders and supplied with plenty of water at the roots during certain seasons, they always luxuriate. The great point towards insuring success in their cultivation is to provide ample drainage, which may be done by digging out a good large hole, 3 ft. or so deep, and then putting in from 9 in. to 1 ft. of broken bricks or potsherds; and to keep the interstices between these clear and open, it is always advisable to cover with a thin layer of fresh gathered Moss, or to place whole sods of peat over them, when the final filling up may be carried out with other peat chopped up rough and mixed with a good sprinkling of sharp sand, which will prevent the mass becoming inert and sour. With a bed or border so prepared, Lapagerias are sure to thrive after they once get a fair start, and that they may have this, the roots should be carefully laid out in the fresh material, and when covered, the soil watered sufficiently heavy to soak it quite through. In order to encourage the plants to break freely, it will be necessary to syringe them overhead at least once a day, which will induce young shoots to issue from almost every joint, and help the plants to push up suckers around their base, but as slugs and woodlice are very fond of the succulent shoots of Lapagerias, these suckers will require close watching and protecting, or they soon nip them off. A lamp-glass forms a capital shield against these pests and is the best guard that can be used, as it does not obstruct the light, and can be put on readily and allowed to remain till the growth becomes hardened and the risk is over. The proper season for planting Lapagerias is during early spring, as they start off at once, and soon recover from the check caused by disturbing their roots. Being a moisture-loving subject, plants should be freely watered all through the summer and autumn till they have done blooming, but to insure rest, they must be kept somewhat dry for the winter, which enables them to start with increased vigour again in the spring. In cases where an increase is desired, that may be readily effected by layering, which is easily done by pegging and burying each alternate joint underground, when after a year, shoots and roots will be formed at about the same time, and the young plants will then be in a fit condition to be severed from the old, and either potted or planted out in the way already touched on. What injures Lapagerias more than anything else is a dry atmosphere, which brings on scale and thrips, insects that soon greatly disfigure the foliage and throw the plants out of health. Nothing wards off these pests so effectually as heavy syringings, but should they put in an appearance, the best remedy is nicotine soap, which, applied at a strength of 4 oz. to a gallon of water, destroys them without hurting the leaves, that is, if not used till the tissues are hard. The way Lapagerias look best is with their shoots trailing or depending naturally from the trellis or support on which the main branches are trained, as then their lovely bell-shaped flowers can be seen to the greatest advantage. Although not hardy, as was at one time supposed, Lapagerias will endure some amount of frost, and succeed well in large unheated houses with Camellias, as the shade and conditions that suit these latter are just such as Lapagerias require. S. D.

ERYTHROTIS BEDDOMEI AS A BASKET PLANT.

PLANTS for hanging baskets are always in demand where there is a stove or conservatory to keep furnished in that way; and this is one of the best for the purpose, although an old plant and one seldom seen in cultivation. It is a free grower, and under liberal treatment soon makes fine specimens. It may either be grown in ordinary wire baskets or in suspended seed-pans. The soil in which I find it to grow best is a good brown fibry peat, broken into pieces about the size of walnuts, and a small portion of loam and leaf-mould, using plenty of sharp silver sand and some pieces of charcoal to keep the compost open, for this plant soon gets into bad health if the soil becomes wet and sour. The basket should be lined with Sphagnum or rough peat before filling it with compost. The old plants may either be broken into pieces and planted or young points may be inserted into small pots filled with finely sifted peat, using plenty of sand to keep the soil open, and plunging the pots in bottom heat. Thus treated, they soon root and make good plants,

ready to plant in the baskets in spring. Use from five to six plants for each basket, according to the size, planting at equal distances apart round the rim, and making them firm in the soil, for if loose the plants soon get dry, and the constant watering soon washes out all the best properties of the soil. I always find this plant to grow most luxuriantly in a shallow seed-pan suspended from the roof of the stove. Use the same compost as for baskets, and plant round the edge of the pan, allowing the plants to hang down. This plant may be used for covering rockwork, or in caves made of rough brickwork. I have also seen it effectively used along with Ferns and other plants for covering walls faced with wire to support peat and Sphagnum. When growing freely it is indeed effective in all positions, for its richly coloured red stems and light green leaves make it a pleasant sight at all times, especially in spring, when the points of each shoot are covered with its soft blue flowers.

Bromley Common.

WM. CHRISTISON.

Companion Plants to *Ficus repens*.—Possibly the old Wax plant (*Hoya carnosa*) will be the best companion or substitute for *Ficus repens*; Ferns or Periwinkles would be considered too common. For a stove the beautiful *Pothos argyrea* is simply magnificent. The very leaves of this plant cling to the wall, while the young shoots would rather break than let go their firm grip; the silver markings and form of the leaves are also beautiful. The creeping *Tradescantia* of the zebrina type, of which there are now gold and silver varieties, form admirable furniture for walls. The *Fittonia* and *Gymnostachyum* are almost equally good, though they do not cling so closely to the bricks. The two *Lycopodiums*, again, *L. caesium* and *L. c. arboreum*, cling closely to the wall, and their glaucous leaves and running stems, rooting into or holding on to the wall with centipede-like feet, have a beautiful effect. The more dwarf *Lycopods* grow on, rather than cling to, walls. Several other plants seem to come up in vague form from past experience, but refuse to be named at the moment; but no doubt other correspondents will come to Mr. Burton's help, and thus we shall be furnished with a goodly list of wall clothers, or clingers rather. For as to clothing, few plants exceed in beauty many species of *Passiflora* and such fine glossy leaved plants as the *Stephanotis floribunda*. The *Cissus discolor* also grows and colours superbly on a wall, as does also the variegated variety of the Yam (*Dioscorea variegata*). Few combinations can exceed in richness and beauty these two plants regularly or irregularly mixed in the clothing of walls in hot-houses. Some of the *Begonias* are also admirably adapted for this purpose, *B. Heeri* and *fuchsioides* being two of the best for the purpose.—D. T. FISH.

***Trifolium repens* as a Basket Plant.**—Many inquiries being frequently made for plants suitable for hanging baskets, allow me to recommend this Trefoil for that purpose. It is different in character from any plant so used, and is, moreover, of the easiest culture, quickly making large plants, and looking well from Christmas onwards. I have raised many seedlings from it, several of them being improvements on the type, varying in their markings and growth. I expect yet to raise varieties far in advance of anything at present known in that way.—W. ELLIOTT, *Deepcar*.

***Clitoria Ternatea*.**—IN THE GARDEN of the 26th March mention was made by "G." of this plant. He stated that there were the white, blue, and the major, which has brown flowers. As he did not mention other kinds perhaps he was not aware of there being others. There is one with a lilac colour, pea shaped, but the best of all are the peloric forms of the *Clitoria Ternatea*. Many years ago I sent Mr. Charles Darwin a coloured drawing of the blue peloric form of this flower. Instead of five petals, pea-shaped, viz., vexillum, 2 alæ, and the 2 petals, forming the carina, it had five petals all of one size, the size of the vexillum, and disposed regularly, one imbricating the other. All the rest of the plant was exactly like that of the ordinary form. If I recollect rightly, Mr. Darwin said he had sent my drawing to one of your contemporaries and asked me to try and find out the reason for which this pea-shaped flower was turned upside down, that is, the vexillum lowermost instead of uppermost, like that of other pea-shaped flowers, but want of time prevented my following up the study. I have been trying to get seed of this blue peloric form, but have only yet succeeded in getting the lilac peloric form, which is not so striking as the blue; I believe the peloric form exists in all three colours, white, lilac, and blue. If I mistake not, it is Mr. Darwin's opinion that all pea-shaped flowers originated in peloric or regular forms, and probably this is the reversion to its ancestral form. I have a few spare seeds of the lilac peloric *Clitoria* and some of the irregular blue. Should anyone like to try crossing them I shall be glad to forward him some if he gives his address. The blue is a Gentian blue, and the peloric is far more showy than the common form. Selection and cultivation might make something fine of it.—E. B.

Clianthus Dampieri.—It is to be regretted that this plant, strikingly and uncommonly beautiful as it is, should be so seldom seen in anything like good condition. Its congener, *C. puniceus*, is a handsome enough plant when well grown, but it cannot compare with *Dampieri*, which, when in good health, is probably one of the most striking flowering subjects in cultivation. Many reasons have been assigned for the failure which I may safely say in most instances attends the attempts to induce a luxuriant growth in *Dampieri's* *Clianthus*; but the most reasonable explanation I have hitherto heard given, and one that my own experience confirms, is that this plant has roots so extremely sensitive and delicate, that the slight check that they experience in the necessary operation of repotting is alone sufficient to cripple and cause the premature death of the plant. Often have I seen the most promising seedlings go off in a sudden and unaccountable manner when repotted. The moral of this is, that the seed should be sown in the pot in which the plant is destined to bloom, and then I think we should oftener see this fine plant in perfection.—J. C. B.

THE ROSE GARDEN.

ROSES ON THEIR OWN ROOTS.

WERE Roses never grown on their own roots? is a question that naturally suggests itself to one on looking over the correspondence that is now poured in on the subject from all quarters. Surely they were not always helped along like cripples by means of the Manetti stock, seedling or other Briers, or that distinguished foreigner with the aristocratic name, *De la Grifferaie*. At one time, difficulties in the shape of "bad to strike, slow in growth, weakly constitutions," and such like parrot cries were unheard of. The Roses of our grandfathers, of the good old Cabbage and Moss Roses, or the vigorous China, Ayrshire, or Austrian Roses, that ran to the top of the house in a season or two, were not "worked," yet we did not hear of any of the difficulties that now beset the path of the Rosarian who attempts "Rose growing on their own roots." This very practice, indeed, is going on in a quiet way in many an old-fashioned garden where new fangled notions do not readily upset the mental equilibrium. In a recent number of *THE GARDEN*, Mr. D. T. Fish plainly and powerfully sets forth the advantages and disadvantages of pruning at various times. If he would undertake to lay down as plainly the way to strike Rose cuttings as easily, and equally as quickly as Gooseberries or Red Currants, he would do a great service to the Rose-loving public. But so long as the process is to be complicated by "so many technical" difficulties, such as lifting and potting in gentle bottom heat when callused, shades, glasses, lights, frames, and other horticultural contrivances, which are only called into requisition for subjects of doubtful hardiness, so long will the general run of people refrain from attempting anything so doubtful of success. The ordinary cultivator, too, is so much used to follow in the footsteps of his leaders, that anything out of the ordinary course of preconceived ideas completely shocks him, particularly if not brought about by some "great man." I may state in conclusion that I have seen hundreds of Rose cuttings put in alongside of Red Currants and Gooseberries, and never saw any more failures among the Roses than among the bush fruit cuttings. They are easily struck, but too many people have an idea that they are difficult, so never try them. What is of importance, too, is that plants from cuttings are far stronger and better bloomers than worked ones. Even some that have the name of being tender and bad bloomers, if left alone a year or two and judiciously pruned, would astonish some of our Rosarians. Anyone desirous of having a few Roses may soon increase his stock by inserting everything that will make a cutting when he prunes.

TYNEDALE.

Rose Cuttings in February.—As far as can be understood from Mr. Fish's remarks (p. 310) in reference to this matter, it does not appear that he has ever given Rose cuttings a fair trial at the particular time named; but how could he, when "February is the worst month in the year for that operation?" Now, so far as I understood the quotation in "Garden Thoughts," Roses under glass were meant, and, in regard to these, allow me to inform Mr. Fish that the sap is at that time in very active motion upwards, and that it does not require to be reversed to form a callus any more than it does in the case of a *Heliotrope*, *Fuchsia*, or *Verbena* when in active growth. A Rose cutting put in under the above conditions will actually form roots and grow like a weed. On the striking of Rose cuttings in February out-of-doors, Mr. Fish's criticisms fall with just weight, but I fancy very few are so badly informed in reference to Roses as to care to make the rash attempt. Why does Mr. Fish advocate November or October, seeing that success

depends so much on chance? and why wait the falling of the leaf? I say Roses may be rooted all through the summer, and that without "white heat enthusiasm," just as easily as *Pelargoniums* and hosts of other things. If done justice to, they will be rooted and potted up, ready to stow away in frames, or be planted out by themselves before the silvery frosts of November set in. Most people who have had much to do with Rose cuttings know the difficulty experienced in rooting them in autumn outside, and the consequent losses sustained, even after roots have been formed. So much is this the case, that any method which will readily effect the former and reduce the latter to a minimum is certainly worthy of adoption. Let Mr. Fish even now put in half-a-dozen cuttings each of Hybrid *Perpetuals* and *Teas*, and grow them on all summer, and relate the result a year hence. If he will do this I will venture to predict that many converts will be made to the method of striking Roses in February.—J. KNIGHT, *The Oaks, Epsom*.

BEST TWENTY-FOUR MONTHLY ROSES FOR BEDDING.

IN selecting Roses suitable for bedding, several necessary qualifications must be considered. When we plant Roses in isolated positions we often do so having regard to some special qualities which by themselves would not make them of value for massing together. The requisites for a good bedding Rose are freedom of bloom, healthy habit of growth, good form, pure, steadfast colour, fragrance, and sufficient fullness of flower. The following varieties are, in my opinion, the best for the purpose:—

Best Six.—Gerard Dubois, bright red, one of the hardiest *Teas*; Homère, mottled salmon-rose; Jean Pernet, a beautiful light yellow, not so well known as it should be; La France, the founder of the new race of hybrid *Teas*, a constant bloomer and the sweetest of them all; Marie Van Houtte, pale yellow, the edges of petals very often shaded with rose, producing a unique effect—a most charming sort; and Mons. Furtado; this and Jean Pernet are the most valuable pure yellow *Teas*.

For the best Twelve, add Appolline (Bourbon), not quite so full as some of the others, but beautiful rosy-pink flowers of good cupped shape, if kept cut back; it is like La France, always in bloom; General Tartar, deep mottled rose, fine habit, good buds; Madame de Vetry, rose, with a shade of salmon; Madame Lombard, reddish-salmon, but of variable shades, very fine; Sombreuil, creamy-white, a superb Rose out of doors; Triomphe de Luxembourg, coppery-rose.

For best Eighteen, add Bougère, rosy-bronze; Comtesse Riza du Parc, bronzed-rose, with a shade of carmine; La Princesse Vera, flesh shaded with yellow, outer petals bordered with coppery-rose; Marie Ducher, salmon-rose; Marie Guillot, creamy-white, a lovely Rose, but unfortunately almost without fragrance; Rubens, flesh shaded with pale rose.

For best Twenty-four, add Catherine Mermet, silvery-pink, the most beautiful of all the *Teas*; Comte de Sembui, salmon and rose, base of petals coppery-yellow; Hermosa (Bourbon), this well-known sort is constantly in flower, but is not equal in quality to others named; Jean Ducher, bronzed-rose; Perle des Jardins, a beautiful straw colour; Queen of Bedders (Bourbon), this is another variety constantly in flower, but it is of rather poor growth, colour a deep crimson, somewhat the shade of Charles Lefebvre.

Besides the varieties named, there are some which will be found very useful for their beautiful buds if planted in a position where they are not constantly exposed to the sun's rays. Such are Agripina, Bon Silene, Douglass, Isabella Sprunt, Safrano, and Souvenir d'un Ami. In a very sunny spot, all of these varieties open their buds very quickly and would not then be desirable.—H. B. ELLWANGER, in *Gardeners' Monthly*.

The Roses of Scripture.—Canon Hole, in referring to sacred history as mentioning the Rose, seems to take it for granted that the Bible speaks in all cases of the same flower as the one about which he writes so charmingly. It is desirable to quote his passage: "When," he writes, "in sacred history a chief prophet of the Older Covenant foretold the grace and glory which were to be revealed by the New when Isaiah would select, and was inspired to select, the most beautiful image by which to tell mankind of their exodus from the law to the gospel, slavery to freedom, fear to love, these were the words which came to him from heaven, 'The wilderness shall blossom as a Rose.' In the Song of Songs the Church compares itself unto 'the Rose of Sharon,' and in the apocryphal scriptures the son of Siraih likens wisdom to a Rose plant in Jericho, and holiness to a Rose growing by the brook of the field."—"Book about Roses," 7th edition,

pp. 35-6. There appears, however, to be some doubt as to the correctness of the above statement, and well-founded doubt most certainly as regards "the Rose of Sharon." Lieutenant Conder, in "Tent Work in Palestine," says, "The famous Rose of Sharon is apparently the beautiful white Narcissus so common in the plain in spring. The Jews themselves, in their Torguin commentaries, so explain the word, and the modern name Buseil, used by the peasantry, is radically identical with the Hebrew title in the Bible"—WALTER ROBINSON, 5, *Chester Square, S.W.*

THE GARDEN IN THE HOUSE.

ROOM DECORATION.

MUCH that holds good in landscape gardening with reference to the employment of contrasted forms of vegetation in juxtaposition with buildings may be borne in mind in selecting the plants used for decoration in saloons and living rooms. Horizontal lines will be found to be the predominating ones amongst the furniture and fittings; therefore, the identical reasons for the use of upright forms, either pyramidal or columnar, in the neighbourhood of buildings whose prevailing lines are horizontal lose none of their force when applied to room decoration. As these forms present the best sorts of contrast, and when accompanied by the proper choice of colours for a daylight or night effect, as may be desired, a great advance will have been made towards attaining the object intended, premising that the plants chosen are fairly well grown. In rooms for the most part occupied only in the hours of daylight the choice of the blooming portion is not so much narrowed as when the choice has to be made for rooms occupied during the evening, or during those hours when artificial light must be used. In the former case almost any shade of colour can be used; still preference, apparently, should be given to rosy and white coloured flowers, as these always have a more enlivening *ensemble* than other hues. With plants in full light, for instance, in the front of a window a freer choice might be allowed.

In rooms used at night the choice of colour is much more limited, dark blue, purple, violet, and yellow assuming other and unpleasing hues under the artificial light, so that the decorator is compelled thereby to leave out many tempting subjects if he wishes to avoid failure. How often do bouquets that look everything that could be wished during daylight become dirty, wishy-washy things so soon as the lamps are lighted. Plants having an inclination to form pyramidal or columnar objects, or climbing ones which are trained over some cunningly hidden supports, or those which are at the same time erect growing in stem, but with pendulous foliage or branchlets, will be quite sufficient when judiciously interspersed to counteract any approach to flatness in the dwarfer forms of vegetation, either flowering or not.

Nothing seems so discordant in effect in otherwise gracefully arranged groups, or amongst specimen plants, large or small, as the presence of a stiffly formed plant, be it in bloom or not. They are quite out of place in any collection of graceful forms. No one can grow certain kinds of plants without being compelled to subject them to some sort of training, but this should be of the most simple kind, and should harmonise thoroughly with the natural habit of the plant.

In rooms with furniture of a spindly character, in which the horizontal lines are not so striking as the upright ones, also where the Gothic style prevails or Pompeian candelabra and vase supports are used, and where the implements of the chase and war are made use of as wall decorations, and arranged perpendicularly or nearly so, the rounded forms of the Chinese Azalea, *Medinilla magnifica*, *Prunus triloba*, masses of low growing Ferns, *Cyperus alternifolius*, *C. Papyrus*, *Philodendrons*, *Curculigo recurvata*, and *Musas* are capable of making pleasing contrasts with their surroundings. Many plants, if allowed to grow downward, as they do naturally, will in time hide the pot in which they are placed.

The varieties of Himalayan and Sikkim *Rhododendrons* should find more favour with us as room plants than is usual at the present time. These with their hybrids are not more difficult to grow than *Camellias*, and always command admiration, but we give over much prominence to the evanescent productions of our florists, often to the exclusion of the truly fine things that once were found more commonly than now. Florists' flowers are useful as "packing" or in situations dangerous to the better class of plants, and as they are often showy, afford a great variety of colour, and are easy of propagation, and will therefore always find cultivation enough. But such plants are fast making all our decorative art in mansion and garden of one monotonous pattern. *Primulas*, *Cinerarias*, *Pelargoniums*, *Calceolarias*—these are the true everlastings with us. Surely cultivators might find something else for a change. SYLVESTRIS,

THE GARDEN FLORA.

PLATE CCLXXXI.—LISIANTHUS GLAUCIFOLIUS.

WITH the beauty of many of the hardy representatives of the small, but well marked Order *Gentianaceæ* readers of *THE GARDEN* will be tolerably familiar, but there is a genus belonging to this Order which claims a tropical, or at least semi-tropical, habitat, and which, in the species we have selected for illustration, far excels in beauty even the showiest of our *Gentians*, lovely as they certainly are. The genus *Lisianthus* belongs to the New World altogether, that is including therewith the West Indian Islands, and naturally divides itself into two groups; so distinct, indeed, are these groups, that the genus *Eustoma* of Salisbury (to which section our present plant belongs) has been separated from the older genus, and I think properly so, although for "auld acquaintance sake" I have retained the old title.

Those familiar with the horticultural writings of some thirty years gone by will remember the *Lisianthus Russellianus*, a closely allied species to the present plant, as not only the subject of a sort of horticultural furore, but obtaining for itself a cultural brochure from the hands, if we remember rightly, of Mr. Cuthill, who claimed first rank at the head of all the successful cultivators of that day. Even then it was exceptional to meet with it in England; but north of the Tweed, where Cockscombs and other manurial ferment-loving plants were grown, it was to be met with



Lisianthus Russellianus.

more frequently; still, the gardener who could stage half-a-dozen well-grown plants of *Lisianthus* was looked upon as no mean adept in his profession. How, then, is it that we so rarely see it now? that the plant here figured, when exhibited at the Bridlington Horticultural Show, was not only a perfect novelty to the visitors, many of whom had frequent opportunities of inspecting similar exhibitions throughout the country, but absolutely a novelty to the gardeners themselves? Before I attempt to answer that question, let me note one thing *en passant*. I have said "similar exhibitions," and I now add that the great fault of all our exhibitions, both great and small, is their absolute similarity. Who ever contributes a novelty, even though it be but one single plant, I hail as a benefactor, in the fact that he has put in a good claim as a welcome disturber of horticultural monotony. Along with the new plants, which are generally exhibited in abundance, let us have by all means some of the old novelties resuscitated; many of these would fairly put the new ones to the blush. With this digression let me return to the previous question—Why do we so rarely see a plant so lovely and so admirably adapted for mid-summer exhibition purposes at a time when blue flowers are so scarce? I have alluded to it as a manurial ferment-loving plant before, and in this allusion the keynote to its cultivation begins and ends. Without going into cultural details at present, let us ask any one to compare the atmospheric condition of the hot-water heated pits of the present day with that of the old frames of years gone by, embedded in a mass of combined leaves and manure, that not only retain their heat long, but with a continuous, unvarying steadiness, such as the most perfect stoker in the world could not attain with hot-water pipes; moreover, the atmosphere is equally



equable in its condition, as regards moisture, and also charged with amoniacal gases. As will be seen by the *modus operandi* given me by the cultivator himself, it is upon this point that the secret hinges, alike in the cultivation of this plant and not a few others besides, that, though nominally old, may yet by their remote disappearance be considered new. When last summer Mr. Inelbald brought me the flowering panicle from which the annexed illustration was prepared, and asked me what I called it, I at once recognised it as a *Lisianthus*; but, though evidently bearing a close affinity to the old *L. Russellianus*, it appeared to me to be distinct, and, on referring to such descriptive books as I had at hand, there appeared to be very little doubt that it was the true *L. glaucifolius* of Salisbury, differing from its ally in the fact that the leaves are broader, of greater substance, and especially in the glaucous grey hue they present. Whether it ought to be considered as a species or a mere varietal form, I can hardly say; but the description answers so admirably, that there need be no hesitation in assuming this to be the plant, for which the description may be considered as godfather. It is a native of the island of Providence, and appears to have been introduced at the beginning of the present century; but whether in the Egyptian mummy fashion, as a mere herbarium specimen, or in actual cultivation, we cannot say. Mr. Anderson, of Severby House Gardens, says that he received the seeds under the name of *L. Russellianus*.

Culture and Position.—The following is a brief outline of his mode of culture: "The plants, being biennial, ought to be sown in March or April in a moist, warm temperature; when large enough, transplant into 3-in. pots, using loam, leaf mould, or sand in about equal proportions, place them near the glass in a Melon pit or frame, pinching out the tops to make them bushy; winter them in a temperature of about 45° to 50°, near to the glass, keeping them rather dry; the following March give them a good shift, and plunge them in a warm moist Melon pit; by the end of June they will be coming into flower, and may then be placed in a light part of the greenhouse, where they will keep in bloom for several months." To this I may add that few flowers stand so well after being cut, a fact which you will readily endorse when I say that the branch from which your figure was taken was cut fully a week before I sent it up to you, and after that time and a long postal journey was yet fresh enough. In floral decoration nothing can be prettier than a spray of the *Lisianthus* flowers associated with the Amazonian Lily (*Eucharis amazonica*).

Hull Botanic Gardens.

JAS. C. NIVEN.

Odontoglossum nevadense.—This is one of the handsomest of that section of *Odontoglossums*, in the flowers of which a brownish hue predominates. The bulbs, which are oval, are rather pointed and bear two linear lance-shaped leaves. The petals, six in number, are borne in a loose panicle. The sepals and flowers are of a rich brownish-chocolate, bordered and tipped with pale yellow; their exterior surfaces are greenish in the middle, and brownish on the edges. The lip is striped with brown at the base, and margined with a delicate fringe of white. It is a spring flowering plant. The annexed illustration was prepared from a fine specimen of it, with several flower-spikes, in Sir Trevor Lawrence's rich collection at Burford Lodge, Dorking, where it is grown in the *Odontoglossum* house with other cool house kinds. It is a native of the mountains of Sierra Nevada, in New Granada, where it was discovered by Wallis and sent to Mr. Linden's establishment at Ghent in 1868.—W. G.

Tuberous Begonias for Bedding.—Those who have not tried these for bedding have a treat in store. To my mind they surpass *Pelargoniums* and many more plants that are used for that purpose. There is a great variety of colours now to be had amongst them, and self or mixed beds of them are really beautiful. They commence flowering in a young state, and continue till cut down by frost. They stand rain or sunshine better than any other plants with which I am acquainted. Seeds sown now would produce good plants for next year's display. Procure some pots or pans and half fill them with potsherds, over which place some Moss and coarse

rubble. Fill them up with some light rich soil, and press all down to $\frac{1}{2}$ in. below the rim, water, and then sow the seed, which is very minute, add a slight sprinkling of silver sand; place on the top a piece of glass, or, what is better, tie a piece of paper over it and put the pot in some warm place where some of the seeds will soon germinate, while others will take weeks before they appear. It is a good plan to prick out the strongest when large enough to handle into some good light soil and place them under a bell-glass in a brisk heat shading from the sun. They delight in heat and moisture when young; many of them will flower in the autumn, after which



Odontoglossum nevadense.

they should be carefully dried off, placed in boxes in dry sand, and stowed away secure from frost. About the beginning of April they should be looked over and taken from the sand, replacing them in the boxes and covering with some fine sandy soil. They should then be set in a warm place, when they will soon start into growth. If more stock is needed, when the shoots are large enough take them off and place them in sandy soil in a brisk heat, in which they will soon strike root and be ready to plant out with the others. Some recommend the bulbs to be potted, but I find they do equally well managed as just described, and they certainly take up much less space.—H. J. E.

TREES, SHRUBS, AND WOODLANDS.

MANAGEMENT OF HARDWOOD PLANTATIONS.

I PROPOSE to treat the management of hardwood plantations chiefly from the pecuniary aspect, as I hold that to form a regular source of revenue to the estate is the end a forester should keep prominently in view. It is true that plantations are often formed for landscape effect, or game preserves, or shelter—in which cases the management is somewhat different from that where profit alone is aimed at; but, taking our woodlands as a whole, the economical aspect is of great importance. It has been the fashion of late years to neglect hardwood trees for conifers in forming plantations, and, as a result, we often find the latter in situations where hardwoods would have given more satisfaction. Where permanent plantations are required, hardwoods must always be preferred to conifers. There is a certain amount of perpetuation of species about them which does not belong to conifers. In well-managed plantations of old growth, one generally sees two or three distinct generations from seedlings and suckers growing up, the younger gradually coming in to take the place of the older ones. Another advantage we have in forming hardwood plantations is the wide choice of species to suit different soils and situations; but at high altitudes, or in very exposed situations, the hardwoods have to give way to the coniferous family. It has often occurred to me that, speaking relatively, the districts of the country suitable for Wheat growing are those most suitable for hardwoods, and those most suitable for Oats are the districts for conifers. But in forming hardwood plantations, in every case where it is practicable, we use the conifers as nurses, as for this purpose they are specially adapted. When the soil is too wet to plant conifers the Birch can often be substituted with great advantage. To give an idea of what is requisite in the management of our common timber trees, I give a few particulars as to their habit of growth, the distance apart most suitable to plant them, &c.

The Oak.—As “king of the forest,” the Oak first claims our attention; but I am of opinion that it is more from past associations than from its present pre-eminence as a profitable timber tree that it has gained its royal dignity. In the days when it alone yielded the material to build our “wooden walls” much value was placed on it, and it was largely planted; it does not now hold the place it did, but the timber is still highly valued for strength and durability. The soil best suited for its growth is a strong loam with damp sub-soil, or deep clay; but while I indicate the best soils for the various kinds of trees, we find them often succeeding on widely differing soils. Thus, we frequently see good Oak timber on gravelly soil, and even on sand. When planted in favourable situations it is tall, straight, and conical in shape during the early years of its growth; as it grows older, it becomes more spreading, and requires plenty of room to develop into a full-sized tree. Being most valuable when of a good size, it should not be planted closer than 36 ft. apart, unless in cases where a plantation wholly of Oak is particularly desired, when it may be planted at 9 ft., and gradually thinned out to the proper distance. Although, when young, its timber is not so valuable as some other kinds, it can be sold readily where there is a demand for colliery props. To obtain the best price, from eighty to a hundred years is the proper age to fell it.

The Ash.—In every part of the country the Ash is highly valued, and, in many districts, from the time it has attained the thickness of a man's finger,* it can be profitably disposed of. The habit of growth is not so spreading as that of the Oak, and the early age at which it can be profitably sold forms an argument in favour of close planting. It grows well on a sharp, gravelly soil, or good loam, but I have found the most valuable timber on black, peaty soil in low-lying, wet situations, and for such soils it is by far the most profitable tree to plant. It should be planted not wider than 8 ft. apart. In winter, when the branches are bare, it is liable to be driven furiously about with the wind, and it lashes trees of a more rigid disposition unmercifully, often doing serious injury to their tender shoots.

The Elm.—The Scotch or Wych Elm is the more valuable of the two species commonly grown in our plantations. Its timber is useful for cart-naves, and also for various purposes as a substitute for Ash. It often inclines to grow with a straggling head, and to break off into two or three limbs, and is the better for being a little con-

finer. If grown by itself it may be planted at 12 ft. apart, but can be advantageously mixed with other hardwood trees. The great drawback to its being extensively planted is its liability to dry rot in the centre—pump-rot it is often called. This, I believe, it is most liable to when planted on sand or very dry soil, although it is often found affected on good soil. The English Elm is a quick growing timber tree of compact habit. The timber is of little value till over fifty years old. In the south it is used as a substitute for Oak in the manufacture of coffins. It is also used for some of the more common articles of furniture. It thrives well on a sandy soil or light loam; on the magnesian limestone formation it also grows well. It is mostly planted with other trees.

The Beech.—When looking at existing plantations, one comes to the conclusion that the Beech had been a great favourite with planters eighty to a hundred years ago. It is a quick growing tree, and thrives well on sandy or light soils; and even on clay soils, if resting on sand, it grows freely. Twenty-four feet apart is close enough to plant it; and it is better in a mixed plantation than in masses by itself, especially if any underwood or shrubs are desirable in the plantation, as, owing to the fibrous roots running close to the surface, it extracts all the moisture from the soil, and makes the ground below its shade too dry for any vegetation.

The Plane or Sycamore.—In Scotland this tree is mostly known by the former, in England by the latter, name. When of a large size its timber is valuable; and even after it is thirty years old, it sells readily for bobbin making and other turnery purposes. The soil best suited to it is a dry gravel or sandy loam, or even sand; and it is most valuable for planting in exposed situations, or within the influence of the sea breeze. Where it grows well the seed generally strikes and germinates freely in the surrounding plantation. It should be planted about 12 ft. apart, and is very suitable for large masses.

The Spanish Chestnut.—The soil best suited for this tree is dry and sandy. It should be planted about 16 ft. apart if grown by itself; but it is better to plant it at much wider intervals in a mixed plantation. The timber is not very highly prized, as it is liable to be ring shaken. It is often substituted for Oak, and, unless by a practised eye, the difference after it is dressed is not easily discerned.

The Horse Chestnut.—In a plantation, where profit is the object, this tree should never be planted.

The Lime.—This is a compact growing tree, and is suitable for mixing with the Elm, Oak, and Beech. The timber is most valuable when of large size.

The Birch.—This is one of the most valuable of our forest trees, and is suitable either for planting in masses in damp situations, where little else will grow, or for planting as nurses in situations unsuited for conifers. It should be planted 4 ft. apart, and can be sold to advantage from the time it is ten or twelve years old. It has a great advantage in being rabbit proof. The compact habit of growth and numerous small twigs render it the most suitable deciduous tree for planting as a nurse to other hardwoods.

The Alder.—In wet situations this tree is valuable for planting either in masses or in conjunction with Birch, Willow, or Ash.

The Poplar.—For timber purposes the black Italian variety is the most valuable; and it is one of the best trees we have for planting on strong, wet, clay soils, on which it thrives well, provided there is no stagnant water. It grows to a great height, and generally leans a good deal to the leeward, especially when much exposed. Owing to its growing so much quicker than any of our other forest trees, it is not suitable for intermixing with them, as it soon overtops them. It should be planted 16 ft. apart, and filled up with Birch to 4 ft. apart. Its timber is of comparatively little value when it is of small size, but after forty years of age it commands a good price. It is the most suitable for making “breaks” for railway waggons of any of our timber, but for that purpose it must be not less than 14 in. in diameter. In soils unsuited to its growth, such as wet, peaty soils, it is liable to throw out excrescences on the trunk. On good, loamy soil, its quickness of growth is quite astonishing. The white Poplar or Abele is the only other species valuable as a timber tree. Unlike the black Italian, this grows well on damp, peaty soil, and in such situations it is most valuable to plant; it also grows well on stiff loam. Its habit of growth is not so spiral as the other, but partakes more of the habit of the Oak or Beech, and when grown singly is very ornamental. The timber is most useful when of large size.

Willow.—It is not advisable to plant this for timber, except in situations too wet to grow any other kind. It can be profitably felled at fifty years old, and should be planted about 6 ft. apart. In most cases in forming hardwood plantations it is desirable to use conifers as nurses, and these should be put in to fill up the ground to

* In some parts of England, Ash saplings, 3 ft. long and the size of a man's finger, are used as “brods” or pegs for thatching stacks, and are sold in bundles at 8d. a hundred. When a little thicker they are used as rods for Scarlet-runners, which are grown in large quantities for market. A little thicker still they do for hedge stakes, used mostly in laying hedges—a practice I recommend only where the hedge has been previously neglected; the price for these is 4s. per hundred. And young Ash, 6 ft. long, and the thickness of a man's wrist in the middle, are used for net stakes, and sell at 1d. each.

4 ft. apart between the plants. In the preceding description of the various trees I have indicated the manner in which I would distribute them in forming a plantation, and assume that they have been properly planted in suitable soils.

In Planting for Ornament, it is often advisable to prepare the ground by trenching and other means, and to adopt a system of thorough drainage, but where the pecuniary aspect is the first consideration, expensive preparation would altogether defeat the object. How often is it insisted upon that thorough drainage should be carried out before planting; but do the advocates of such a system ever consider what this means? It simply means to pronounce a veto on all planting operations. Thorough drainage is not obtained by a 2-ft. drain every 30 ft. or 40 feet. To obtain that we must have 2-ft. drains 12 ft. apart, or 4-ft. drains 24 ft. apart; these being open, would, at the least, have to be $3\frac{1}{2}$ ft. wide at the top. Let any practical man say what the expense of such drains would be. The cost, on a very moderate estimate, would be from £7 to £8 per acre. That sum would form the veto of which I have spoken. By the proper distribution of the various kinds of trees, all the drainage necessary is to form surface drains to prevent any stagnant water. Of course, if we persist in planting Sycamore, Oak, or Beech on soils surcharged with water, we must expect failure. Having formed surface drains in the lowest parts of the plantation, we must also have them periodically cleaned out. For three or four years after, we require to keep the trees clear of rough Grass, Briers, or Gorse, otherwise they will be smothered in their infancy. There will be more or less failures in the plantation, and the gaps should be filled up during the first two or three years.

Thinning is the next operation which demands our attention, and is one of the most important in the system of management. No one who pays close observation to plantations in his neighbourhood can fail to see instances of ruin arising from under-thinning as well as overthinning. While it is necessary to let in light and air to young plantations, it is equally necessary, or even more so, to guard against overthinning them. The first neglect may be remedied at a future time; the latter mistake is fatal to the future welfare of the plantation. No set age can be fixed for beginning to thin, but the first thinning should be early enough to prevent the nurse trees overcrowding and injuring those which are to form the permanent crop. The value of the thinnings—that is of the trees removed—should not be so much looked at as the benefit of the trees which remain, that being the main point. The early thinnings should be done sparingly, and some of the nurses may have side branches removed in preference to taking them out altogether. For thriving plantations, a thinning every six or eight years up to forty years of age will not be too often if done in moderation. The late autumn and winter months is the proper time to thin; when the leaf is off one can see better to do the work, and is not so liable to overdo it as when every twig is bent down by the weight of its leaves. One important point in thinning is to leave the best trees for the permanent crop, even if they are not situated so regularly as we could wish. Various causes render it, in certain cases, undesirable to leave trees that should otherwise stand. They may have been damaged by wind, lightning, or frost, or be diseased, in any of which cases the tree should be cut down, even if the gap created is considerable, and even if the work is unfavourably criticised for want of regularity. After the trees are thirty to forty years of age, they admit more light and air, and in most cases there is a good growth of seedlings and suckers, the best of which should be encouraged to grow where there is head room, or near where there is a tree soon to be cut down, the young plant will then take its place. When thinning hardwood plantations, we cannot just make so much and no more room than is necessary for the remaining trees, but we have of necessity to make larger spaces than their actual wants require. It is, therefore, of great advantage to have a younger crop coming up to fill the vacancies, and eventually form a succeeding crop. We have thus a perpetuity of cropping, which I consider a great feature in favour of hardwood planting over conifers. When there is a quantity of underwood in a plantation about to be thinned, it should be brushed up previous to cutting down the trees. The plan we adopt is to mark all the trees to be felled, the men brushing the plantation, then see what trees are coming down, and leave some of the best suckers or seedlings where they have a chance of growing. In some parts of England the brushing of plantations can be done at a profit, owing to the demand for small rods for various purposes, and also for faggots for oven wood; but even where there is no return for the labour, it is necessary work. Where plantations are meant for shelter or ornament, the thinning has to be carried out in a different manner; it has to be done a little more freely in the earlier stages of their growth, so as to admit plenty of air to prevent the lower branches from dying off, and

encourage the trees to develop as much top as possible. In the management for profit, we study to keep the trees close enough when young to check the growth of under branches, and gradually to cause them to die off—this is necessary for the quality of timber to be produced.

Pruning.—Young plantations require special attention in this department for a few years after they are planted, and all hardwoods may be thus improved. Keeping in view that we are managing the plantation with the object of profit, the system of pruning should not be so elaborate as desirable in other circumstances. After the trees are twelve or fifteen years old their tops should in the majority of cases do without further pruning, all that is necessary being to prune off the lower branches close to the trunk as they die off. When a plantation is properly cared for from the time of planting it should never be necessary to cut off very strong branches, but where it is necessary, branches 3 in. or 4 in. in diameter may be cut off without fear of injury to the tree. In all cases when removing branches close to the trunk the hand-saw should be used, as in using the axe or any other implement one requires to strike with the bark is loosened from the trunk, and the wound is consequently longer in getting healed over. This does not apply to branches less than $\frac{3}{4}$ in. in thickness, which can be more expeditiously and neatly removed by the handbill or small hatchet. While it is necessary to leave a considerable portion of the bole clear of branches for the sake of producing good quality of timber, we have to be careful not to denude the tree of too many of its branches, or we injure its growth. There is a good deal of difference of opinion about what is the proper season for pruning forest trees; we find from the end of July till the end of September to answer very well. Some foresters, when thinning a plantation of young Oak in the peeling season, have a habit of pruning all the remaining trees for the sake of the bark, but as the sap is then flowing freely, any advantage is more than counter-balanced by the injury done to the trees.

Felling.—In hardwood plantations this requires to be done in the winter season, and should if possible be finished before the bud begins to expand in the spring, except in the case of those varieties which are to be peeled. The axe is the best tool to use in the earlier stages of a plantation's growth, but after trees get to forty years old the saw should be used. When this work is done by the forester's own men, he can generally have the work done to his satisfaction, but when the work is done by the piece by a timber merchant's men, this is not so easily done. Care has to be taken to have the trees felled close to the ground, which is more especially necessary where the suckers are desired to grow up as underwood, or to come in for a succeeding crop. In felling trees grown from old stools, we often come across portions of the old stool imbedded in the bottom of the tree, and as this is always partly decayed and of bad colour, it spoils the sale of the timber, whereas, when a tree is grown from a stool cut close to the ground, it cuts off sound and good. Another important point to be attended to in felling is to do as little damage as possible to the standing trees by the fall of those being felled. When felling hardwood timber of large size, in the case of trees that have several large limbs, care must be taken to prevent the weight of the fall being on one particular limb, otherwise it will probably splinter and render it useless. In hard frost especially, timber is very liable to splinter with falling, and large clean grown Beech is the kind I have found suffer most.

Peeling.—Among hardwood trees this is mostly confined to the Oak, although formerly we have peeled Spanish Chestnut, Alder, Birch, and Willow, the wood of the three latter kinds going for the manufacture of gunpowder; the bark, except the Birch, being useless. The season for peeling is when the sap flows freely, which varies as the seasons are early or late. In many parts of the north of England the Oak, when of any considerable size, is peeled standing, and the custom has a good deal to recommend it, as when the timber stands in this state for three or four months it does not split and open with the sun as it does when felled at the time of peeling. By those who have not seen the work carried out it may be supposed that it is very expensive and tedious, but men used to the work can do it almost as quickly as if it were felled. The work is mostly done by the piece, the price for stripping a ton of bark being about 30s. In most parts of Scotland it is customary to peel very small branches, which no doubt paid when bark was worth £12 to £15 per ton, but at present prices it does not pay, as the bark is very light, and I do not find that tanners give any higher price for it than they do when there is no small bark in, so that for several years we have not peeled it smaller than about 2 in. in diameter. Removing the trees after they are cut down requires care, especially where they have to be dragged out by horses. When they are dragged roughly and knock the bark off other trees it is many years before the wound heals over; meanwhile the

injured part is decaying, and when the tree is felled in after-years there is a blemish which causes it to be worth so much per foot less. This requires to be particularly guarded against in the peeling season when the bark is more easily knocked off. In places difficult to get at with horses, where heavy timber has to be shifted, traction engines such as are attached to Fowler's ploughing tackle, can be used with advantage. They remove the heaviest trees with the greatest ease and steadiness, so that where the growing trees are not too thick they are far better than horses. I have seen the best results in removing trees from a very steep rocky bank with a river at the bottom, and had this means not been available, and block and tackle alone used, it would have been a very expensive process. With a traction engine on this estate we, last spring, cleared the timber from six acres of very wet bog soil which in the winter season is unable to carry the weight of a horse. Clearing tree tops and brushwood from plantations, unless for tidiness, is not requisite, as they do no injury to the growing trees. In those districts where such refuse can be disposed of at a profit, all should be cleared away.

Such, in my opinion, are the leading points conducive to the proper and profitable management of hardwood plantations. I have given no details of the carrying out of the different operations, as I consider that beyond the scope of the subject, and to do so a volume would have to be written.—D. TAIT, in "Scottish Arboricultural Society's Transactions."

THE HOP HORNBEAM.

(*OSTRYA CARPINIFOLIA*.)

A LARGE and handsome specimen of this highly ornamental tree is now a fine object in the Old Arboretum at Kew, where it is profusely laden with its elegant catkins. These are the male or pollen-



The Hop Hornbeam (*Ostrya carpinifolia*).

bearing flowers, and later on female flowers, produced in shorter and more globular catkins, resembling the common Hop, will again give the tree a handsome appearance. In general aspect it much resembles the common Hornbeam, but may be at once distinguished by its Hop-like catkins, of which the annexed is an illustration. The tree at Kew is said to be the finest in England, but several other good examples exist in other English and Scotch gardens. It is known also as *O. vulgaris*. It is widely distributed in Europe, especially in south-eastern regions. The other species, *O. virginica*, the Virginian Hop Hornbeam, differs from the preceding in the

strobiles, or female catkins, being borne erect, and not drooping, and also in the leaves being of a different form. W. G.

Age of Trees.—The following, taken from a biography of Humboldt in "Worthies of the World," shows to what a remarkable age some trees have attained. This is an interesting subject, and as so very few old trees remain in this country, I think it would be well if a record of these were kept, and perhaps some of your readers who know of such within their experience could make a note of them, stating age and locality as a guide for those who might wish to see them. In speaking of Humboldt's visit to Teneriffe, the writer says: Humboldt and Boupland took advantage of their short stay at Teneriffe to visit and measure the remarkable Dragon tree of Orotava. Judging by the small increase in the size of this tree, in the course of centuries, and comparing its dimensions with those of the young Dragon trees that surround it, Humboldt assigns to it a vast age. It is just mentioned by the voyagers, the Bethencourts, who visited Teneriffe in 1402, and appears to have been worshipped as a sacred tree by the Guanches, the original inhabitants of the island, as the Ash tree of Ephesus was by the Greeks, the sacred Banyan tree in Ceylon, or the Lydian Plane tree which Xerxes decked with trophies. This visit to the Dragon tree of Orotava was afterwards the occasion of an interesting series of observations on the age of trees. Humboldt says that De Candolle, judging by the rings formed in successive years under the bark of the trunk, assigns to the celebrated Yew tree in the village of Brabourne, in Kent, an age of 3000 years, and the Scotch Yew of Fortingal twenty-five or twenty-six centuries; while the celebrated Rose tree in the ruins of the crypt of the cathedral of Hildesheim, in Germany, has an ascertained age of 1000 years. The cathedral was founded by Louis the Pious, the son and successor of Charlemagne. Louis died in 840; and that this Rose tree was planted at the foundation of the cathedral is attested by a document of the eleventh century, which records how on the rebuilding of the cathedral the Rose tree of good King Louis was preserved, and its branches spread out over the walls of the crypt. At Ripon, in Kent, and Crowhurst, in Surrey, are also trees of an estimated age of from twelve to fourteen centuries.—J. S. T.

GARDEN DESTROYERS.

THE LABURNUM MOTH.

(*CEMIOTOMA LABURNELLA*.)

It seems almost incredible that this charming little moth should in any way be the cause of injury in our gardens; unfortunately, one cannot always judge fairly by appearances, though persons often think that they can, and at once crush all beetles and spiders because they are often black and ugly, and are therefore "nasty destructive things," without thinking that they may be of the greatest use, while many of the more ornamental insects are very destructive; this is the case with this little moth, for when seen under the microscope one can hardly imagine a more beautiful or delicate insect. Its pearly whiteness, relieved by silvery grey and a few yellowish bands, renders it a truly lovely little insect, but its grubs feed on the leaves of the Laburnum, causing them to shrivel up, making the trees look in the middle of summer as if they were dying. This insect may be destroyed by the following methods: The moths may be found in May and August, and if the branches of the Laburnums are shaken smartly they will fly out and may be easily caught in a butterfly-net. To kill the grubs the best way is to gather any leaves which show any signs of having been attacked and to burn them; this is a very effective way of preventing, or at any rate lessening the numbers of the second brood. The chrysalides of the first brood may be destroyed in the same manner as the caterpillars, as they are formed on the under sides of the leaves; those of the second brood, however, are made in the soil below the trees, and are so small that it would be useless to look for them; if, however, the soil is turned over in the winter to the depth of a few inches the chrysalides will be more exposed to the influences of the weather, and birds, whose eyesight is very keen, will probably soon discover them.

The moths generally make their first appearance in May, and soon afterwards lay their eggs on the upper sides of the leaves. The little caterpillars when hatched work their way beneath the upper skin (this point is always visible as a dark brown spot) and feed on the flesh or parenchyma of the leaf, gradually as they feed forming large blister-like patches. In feeding they describe a segment

of a circle with their heads, and leave their droppings in a series of concentric, broken, curved lines, which are apparent in the leaf as rough dotted lines. There are frequently two or three caterpillars at work on one leaflet, in which case these blisters soon join, and the leaf assumes in a very short time a shrivelled, withered appearance. They are generally full grown in July. I have found them in this condition about the 14th; they then leave the interior of the leaves and each selects a suitable position on the underside of the leaves, usually near the edge, and spins over itself a thin silken web, which causes the leaf to curl slightly; beneath these coverings they spin small hammock-like cocoons of a much thicker texture, within which they undergo their change to the chrysalis state. The transformations of this brood are completed in about two months. At the end of July or in August the second brood of moths appear, and another but similar series of metamorphoses, and the work of destruction is again gone through; this time, however, when the caterpillars have obtained their full growth, they work their way to the surface of the leaves, and gradually let themselves fall to the ground by silken threads, which they spin from their mouths. I imagine they usually select a fine day

hairs. The wings are silvery white; the upper pair are long and narrow, with deep fringes at the tips and lower margin. Near the end of each wing are three radiating, transverse, yellowish bands, each being edged with a fine brownish line. These bands meet near the end of the lower margin of the wing in a dark spot or eye. The under wings are long, very narrow, and very deeply fringed. The caterpillar (fig. 3) is about $\frac{1}{4}$ in. long when full grown, and is of a pale greenish-grey colour. The head is nearly black; the first joint of the body is broader than the others, and has in the centre a dark, blackish patch, which is divided into two spots by a thin, pale line. The joints are very clearly defined, being very globose and having somewhat the appearance of a string of beads. The first three, the sixth, seventh, eighth, and ninth joints each bear a pair of legs. The upper surface of the body is very thickly covered with very fine, short hairs, which are only visible under a microscope; besides these there are two longish hairs on either side of each joint, except the first. The chrysalis (fig. 2) is rather more than $\frac{1}{2}$ in. long, and is of a reddish-brown colour, surrounded by two white silken coverings, the inner one being of a much thicker texture than the outer one. G. S. S.

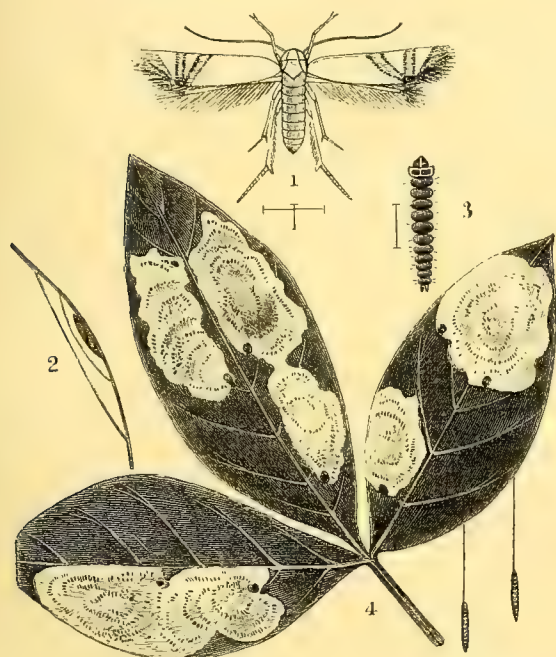


Fig. 1.—The Laburnum Moth (magnified). Fig. 2.—The Chrysalis (magnified).
Fig. 3.—The Caterpillar (magnified). Fig. 4.—Laburnum leaf, showing
the blisters formed by the Caterpillars.

for this undertaking, as very wet or windy weather would seriously incommode them. At the end of last September, on two bright still days, I observed the caterpillars descending to the ground in hundreds; the air beneath the trees was full of them, and one could quite imagine that had there been a slight breeze to carry them a little distance from the trees, most persons who saw them would have declared that the caterpillars were falling in a shower from the sky, for the silken threads by which they were attached to the trees were hardly visible.

This insect seems tolerably common throughout England; it was more than usually abundant in some places last year. During the summer I noticed several trees on which there was scarcely a leaf which was not more or less injured, and the trees, even from the effects of the attack of the first brood, presented the most miserable, scorched, and withered appearance, and I should think must have been much injured by the loss of so many leaves. This moth belongs to the genus *Cemistoma* and the family *Lyonetidae*, one of the *Tineina*. *C. laburnella* (fig. 1) is about $\frac{1}{2}$ in. long, and measures $\frac{1}{10}$ in. across the fully expanded wings. The head and thorax are silvery white; the former has two downy tufts, one on either side just above the eyes, which entirely conceals them when viewed from above. The antennæ are white, long, and delicate. The body is pearly grey, with a white spot on either side of each segment. The legs are white, thickly covered with fine

THE FRUIT GARDEN.

FRUIT CULTURE FOR PROFIT.

The Peach.

Training.—The fan is the shape commonly selected for the Peach on the open wall, and as cultivators run pretty much in the same groove without troubling about the why or the wherefore of the matter, this shape will probably continue to monopolise the principal attention. In truth, the young tree generally assumes this shape in the nursery, and by the time it passes into the cultivator's hands, its form has been so moulded and fashioned, the adoption of any other course would lose time. I do not say that the fan is not a suitable or good shape; it has many advantages doubtless, but it is hardly advisable to be tied down to any hard and fast line, though that line may in a general way give good results. I have seen excellent Peach trees with the branches trained horizontally, and with this mode of training there is less danger of overcrowding the branches, which is one of the great evils of Peach culture, and leads to more weakness and debility than is commonly supposed. If we start with a young Peach tree with a main central stem, and lead out young branches at equal distances apart on each side, allowing the bottom branches to keep ahead of the others for the proper balancing of the tree's power; if we take the bearing branches at proper intervals on the upper side of the main branches only, laying in a new set and cutting out the old annually, Peach growing, so far as the training is concerned, is placed on a plain and simple basis; even a beginner can hardly make a mistake or fail to master its details. When the fan shape is adopted there is always a temptation to lay in too much wood, as when a man is disbudding in spring, or pruning later on, any shoot that looks doubtful is almost sure to be left in; and dead wood, both in Peach and other fruit trees might, if all things were traced back to their sources, be often truthfully ascribed to the facility afforded by fan training to overcrowding the branches. It is not easy in writing about fruits so much alike in character as the Apricot and Peach to avoid repeating oneself more than is necessary or desirable, and I will state, to save time here, that all I have written as regards the preparation of the borders and selection of the trees in treating of the one will especially apply to the other, and as the Nectarine is merely a variety of the Peach, I may, so far as the details of its culture are concerned, ignore it altogether. The almost universal system of cropping the Peach is to have the fruit on the young wood of the previous year; and, as a rule, this is the best plan, but there is no rule without an exception. There are cold districts in the north where, instead of the close disbudding necessary for the legitimate carrying out of this system, a modified form of spur pruning may be adopted with advantage, for the sake of the shelter afforded and the double chance of securing a crop which is given by it. Of course no one who can obtain all the fruit required by simply laying in a moderate supply of young wood will wish to complicate matters by resorting to spurring. But if, during a cold spring, instead of disbudding so much young growth, some of the young shoots are pinched back to three leaves or so, con-

siderable shelter is secured thereby; and as the spurs generally ripen well they also bear plenty of healthy blossoms. Of course the spurs must not be shortened back till the wood buds can be distinguished, as Peaches will not swell properly without some foliage on the branches beyond them to keep up the circulation. In writing about the Apricot I drew attention to the absolute necessity for considering well the condition of the roots, and I direct attention to it here because I wish to state still more forcibly that it is quite as important for the Peach. I grant that the Peach is more manageable than the Apricot in good hands. It is not so subject to that sudden paralysis of its vital powers in portions of its limbs, which often causes unsightly blanks in otherwise apparently healthy trees. It will grow and bear good crops of fruit where from some unascertained cause the Apricot does not thrive. It is commonly supposed that the Apricot thrives best in maritime districts, and that it does often thrive well in such districts, I know, but yet the cause cannot be in the atmosphere alone, for I can mention places in the midland counties where Apricots fail in the open air, yet bear excellent crops under glass. Altogether, the matter seems to require further investigation, and I am disposed to think if as much pains were taken with the roots of the trees in the open air as is done under glass, the failure would not be so complete as it has been represented, and in fact in many places is. I have known instances where young trees of both Peaches and Apricots have been planted time after time against walls, from which old diseased exhausted trees of the same class of fruit have been only recently removed, and when this is done without removal of the soil failure must be expected. In planting south walls, a good part should be devoted to Peaches and Nectarines. Apricots, south of London do very well on east or west aspects; two or three trees perhaps for a few early fruits may occupy a position on a south aspect, but the greater number should be elsewhere, and if there are any buildings, such as stables, &c., to cover with fruit trees, let all the best aspects be planted with Apricots. Plant thickly, get the wall covered, then re-arrange. In my young days more attention was given to the lifting and re-arranging of the roots of wall and other trees than is done now, and that is, I believe, the chief reason why wall trees are not as a rule so well cultivated now as they were thirty-five years ago.

Disbudding.—All fruit trees that are submitted to pruning and that are growing in a circumscribed space will push more buds than are required, or for which space can be found. And there are no trees that would not be benefited by having the weakly buds that are not required rubbed off as soon as they push forth. But most cultivators are content in dealing with the commoner kinds of fruit to wait till summer, and then cut or pinch back, and in the winter pruning to remove the spurs that are not required. But all are agreed that the Peach should be disbudded, commencing early and going over the trees once a week or so till they have been sufficiently thinned, and the young shoots have attained some size, and can alone carry on the work of the tree. Were the young shoots removed all at once, too much check would be given, and checks of all kinds should be as far as possible avoided. Fruit trees in our climate will have checks and difficulties enough to encounter without our adding to the number. The first shoots to be rubbed off are the forerights, or those that spring immediately from the front of the branches. Unless it should be necessary to encourage spurs for the sake of the shelter they afford, the forerights should all be rubbed off. The next effort should be to thin out the side shoots, but before this is proceeded with one well placed shoot near the base of each bearing shoot should be selected for bearing next year's crop; the remainder of side shoots should be gradually removed, until none but those it is intended to lay in are left. In all cases there must be a good shoot at the base and a leader, and others may be left on young growing trees wherever there is space to lay them in without crowding. I have already written something about the system of training the bearing branches all on the upper sides of the main branches, but I know that many good cultivators do not think it matters much on which side of the main branches the bearing shoots are situated provided the tree is well furnished with them in all its parts. But it is best, especially for learners, to work upon some given system that is simple and easily understood. It satisfies the mind and tends to prevent confusion. We will suppose we have an ideal tree, perfect in form—no matter

whether it be fan or horizontally trained. As the main branches progress, the bearers are laid in at nearly equal distances on the upper side. The following spring a young, strong bud is developed at the base of each, and by timely disbudding additional force is given to it, and it extends, gathering strength as it advances, and, having space for its foliage, the wood ripens well; the buds bristling along its side are well developed; the blossoms, when they expand, are strong, and there is generally, even in difficult seasons if moderately protected, plenty of fruit to thin off; usually there is too much young wood laid in. We all seem to wish to have the power of selection, but that power should be exercised when the branches are young. To leave two shoots growing in a space where only one can remain is a waste, as it must tend to weaken both. Disbudding is valuable chiefly because it concentrates the growing force of the tree into just those channels where it can be usefully employed, and all wood the tree carries through the summer not absolutely required is simply so much waste of power. There will of course always be a proportion of young wood to be cut out in the autumn or spring pruning; for instance, the young wood will require shortening back a third or so, more or less, to keep it in its allotted space, and then again the bearing shoots must have a leader; though if the tree be well furnished that leader may, in some instances, be pinched back to 6 in. or 8 in. long; so that there need be no anxiety about there being plenty of foliage on the tree to enable it to carry on a vigorous and healthy circulation. I have dwelt somewhat upon this matter because I am anxious to make it plain; though really it may not matter much where the bearing branches are situated provided the tree is well furnished with them, so that the load the tree carries is so well adjusted, that it sits easily upon it, and keeps all the channels of supply in active employment. We know, of course, that the sap from the working of natural laws meets with less friction if its upward ascent assumes a vertical, or nearly vertical, direction, and therefore, according to these same laws, the branches that are trained on the upper side should be better supplied with sap than those which take a downward direction.

Winter Pruning.—As regards the Peach, so soon as the fruit is all gathered, the branches that have borne it, and that will require removal to make room for the next series of bearing shoots, should be cut out. When the sap is in rapid motion the wounds heal quicker, and by the early removal of useless wood more air and light can be admitted to the leaves and buds left to ripen and consolidate, and so induce an early and lengthy rest. As autumn approaches and the leaves show signs of ripeness, some people take a birch broom and sweep them off to expose the wood and bring colour into the bark. To my mind this is a useless operation when applied to trees growing in the open air. When the leaves have performed their work, the agencies Nature employs are quite sufficient to bring them down; and if both wood and buds are not well ripened before the leaves fall, there is but a very poor prospect of maturation taking place after. When the leaves are all down, unnailed the young wood and allow the wind to play around the branches. I believe all wall trees would be healthier if these younger branches could be unfastened and permitted a little freedom, even to the extent of waving about in the air so long as no damage was done by abrasion. It is unnatural to tie trees close to a wall and keep them there constantly. Small cause should there be for wonder, if we well considered the matter, if branches die off without apparent cause or even if trees become debilitated or die off altogether. In February, when the buds are swelling rapidly, the trees should receive their final pruning, but when the old wood is cut out soon after the fruit is gathered there will not be much required beyond shortening the young wood back a little; how much must depend upon its condition. In all cases the cut must be made just a little in advance of a wood bud to ensure a leader, without which the fruit will not swell properly. Some kinds, such as the Barrington Peach, are sometimes deficient in wood buds; but in all cases a wood bud must be left to lead. The Peach often produces its buds in triplets, consisting of a wood bud between two flower buds, and it is a safe practice to cut near to buds of this character. Besides the shortening of the young wood, and perhaps the removal of a shoot where too numerous, the scars or remains of imperfectly healed wounds, if any, should be smoothly trimmed up to enable new bark to form over the wound. These scars sometimes remain from the disbudding or summer pruning

of the previous year, and if neatly trimmed with a sharp knife they will soon heal up. If left, permanent wounds may ensue, or gumming may take place, and at any rate all inequalities in the bark form a hiding-place for insects. The trees should be trained to the wall before the first blossom expands, but the longer this operation can be delayed with safety the better, as it retards the bursting of the buds, and late blossoming helps to secure a crop.

The Plum.

The Plum, as a hardy fruit, comes next in importance to the Apple and Pear; indeed, some may think the Plum should stand before the latter, but Pear culture has hardly yet received the attention at the hands of cultivators it is probably destined to receive. I mean, of course, so far as regards the better kinds of fruit, as the Pear, being a native of this country, has always been more or less planted. I have sometimes seen Plums and Apples planted in orchards indiscriminately, allowing each the same space; this is a mistake, unless the Plums are simply planted to occupy the ground till the Apples come into bearing, and be afterwards removed, as the latter require the space. Plums come sooner into bearing than Apples, and, therefore, supposing the Apples are planted their full distance of 24 ft. apart, Plums of early prolific kinds, such as the Victoria, Orleans, and Early Prolific may be planted between them, to be removed when the Apple trees require the space. But with this exception, and speaking in general terms, Plums should have a part of the orchard to themselves with no other top-growth to interfere with them. If the orchard is well placed for shelter on rising ground—not in the bottom of a valley—Plums are often more profitable than Apples, and I know orchards of Plums that very rarely fail, simply because they are well situated as regards shelter and position; and orchards of this character pay handsomely, as it is when there is a comparative scarcity that fruit realises the best price. The same care in trenching and preparing the site is necessary for Plums as was recommended for Apples, and the trees should be staked as soon as planted, to prevent injury from high winds. The young trees should be headed back the first season when the buds are showing signs of pushing. Afterwards, as regards orchard trees, the only pruning required will be to remove branches that cross each other, or are otherwise badly placed, as when the tree is thinned out none but bearing wood will be made, and as Plums begin to bear almost immediately, the crop of fruit will soon rectify any tendency to over-luxuriance in the tree. Standards are the best kind of trees to plant in the orchard, and they need not exceed 15 ft. apart; on some soils less will suffice.

Pyramids.—These or the dwarf bush form, always realise profitable results, and are especially suitable for garden culture. When well attended to in summer to keep their young growths thin and pinched back about June, and once or twice after if necessary, plenty of fertile buds are formed, and are usually followed by good crops of fruit. Whenever a tendency to over luxuriance is noticed, the trees should be carefully taken up and replanted, which gives them the required check. Such trees will remain of moderate size many years, and they are therefore well adapted for small gardens. If possible they should have a narrow border or borders to themselves, and be mulched in summer so as to keep the roots near the surface, and maintain them in a continual state of fertility. The spade should be banished from all such borders, as nothing like annual digging by the spade should be permitted; the fork or hoe just to loosen and stir the surface, so as to aerate it, will be all that is necessary. The winter pruning should be confined to removing dead spurs and shortening back the snags left at the summer pinching and thinning. The head of the trees must of course be kept thin to let in the sun and air, but the knife should only be used sufficiently to accomplish this object. The greater part of the pruning should be done in summer. Winter pruning often leads to the production of useless wood; summer pruning never does so, provided it be rationally done.

E. HOBDAV.

the interest of fruit. It seems to us that there is no doubt whatever of the capacity of our climate in the southern parts to grow Grapes, especially on walls, but that ill success is owing to mildew chiefly, except, of course, in exceptionally bad seasons.

MARKET GARDEN FRUIT PROSPECTS.

IN spite of the long continuance of cold blighting winds and frosts the season promises fully to realise the hope held out last autumn that we should have this year a grand fruit season. I have been looking through some young trees, all full of robust growth, clean and healthy, and on plenty are branches of three years' growth, from 4 ft. to 5 ft. in length, studded throughout with fruit spurs, not puny ones either, but as large and vigorous as can be desired. All ordinary market Apples promise freely, and if young cultivators, who are so fond of using the knife in the wrong way would now go into the market gardens or wherever the opportunity for such inspection may be obtained, they, if duly observant, cannot fail to note how some trees make their spurs chiefly on the old wood, whilst others produce bloom only at the extremities of the year's shoots. No wonder, then, when the knife makes a clean sweep of all the young wood, the chance of a fruit crop goes too. Amongst the sorts I have been looking over, I noted specially the Early Harvest, the Golden Noble, and Yellow Ingestre as presenting examples of this characteristic; but almost every kind has its peculiarities, and no better time for study of those peculiarities can be found than the present, ere the trees are clothed with leaves. Of some 50 or more kinds of Apples now 10 years planted, I find the following exhibiting bloom-buds in a remarkable degree, viz.: Mother Apple, Cox's Orange Pippin, Nonsuch, Red Astrachan, Tower of Glamis, Margil, Kentish Fillbasket, Reinette du Canada, Reinette Blanche, Cellini Pippin, Sturmer Pippin, Downton Pippin, Warner's King, Winter Peach, Wellington, Norfolk Bearer, Lord Nelson, Petworth Nonpareil, Cook's Seedling, and Norfolk Beefing. There are, however, many others that will carry a fine head of bloom, but where, from habit, it is not yet so prominent. Pears are not at all behind Apples. The bloom is more prominent even, and with a few warm days it will be fully expanded. The stout appearance of the buds leads to the conclusion that there will be an abundance of pollen and general fertility. Plums and Cherries alike present a wondrous show for bloom; fuller of buds they could not well be, the buds of the Cherries especially standing out in big clusters—indicating a large crop of fruit. Wall fruits too are blooming freely; Peaches especially are literally a mass of bloom. On some trees I can count 20 good blossoms in 8 in. length, far too many, perhaps, but the fruit can be easily thinned, whilst no art can make a good crop out of a thin one. During the past week the Gooseberry bushes have assumed a rich green appearance, and fruit buds are visible all over the branches. Currants are not so forward, but the promise of bloom is very great; indeed, there does not appear to be any kind of hardy fruit that does not promise to produce heavy crops.

A. D.

SECTIONAL TRELLISES IN PEACH HOUSES.

IN most of the ordinary structures in which Peaches and Nectarines are grown and forced, the best position in which such trees can be trained is possibly under the roof, at a distance of 16 in. or so from the glass, so as to secure, if possible, the thorough ripening of the young wood as well as the development and perfect ripening of the fruit. But in large, lofty, and exceedingly light structures, such as have been recently erected at Nowton Court, near Bury St. Edmunds, the case is somewhat altered, and in order to secure a greatly increased amount of space or surface on which to train the trees, the by no means novel system of sectional trellises may, no doubt, with considerable advantage be adopted. A visit to Nowton Court will at once dispel anything like doubt respecting the thorough ripening of the young wood under this system of training, and the present season will ere long furnish proof as to the ripening, colouring, and flavour of the fruit, as the trees in the early house have already, without a single exception, set an abundant crop of fruit, and are in all respects in the most clean and healthy condition that could be desired.

The principal range of glasshouses here is 160 ft. long, and is in four divisions, each 40 ft. long and 17½ ft. wide inside. They are 6 ft. high in front and 18 ft. at the back. The two central divisions are Vineries, and the end structures are Peach houses. All of them, together with two span-roofed structures, one for Melons and the other for Cucumbers, are admirably heated by two of Keith's patent boilers, which efficiently work upwards of 3000 ft. of 4-in. hot-water pipes. The houses, which are all constructed of wood, are light and elegant in appearance, and at the same time exceedingly strong and substantial. The panes are 3 ft. by 1 ft. 2 in. Ventilation is effected upon the most approved principle, and is ample in extent, allowing

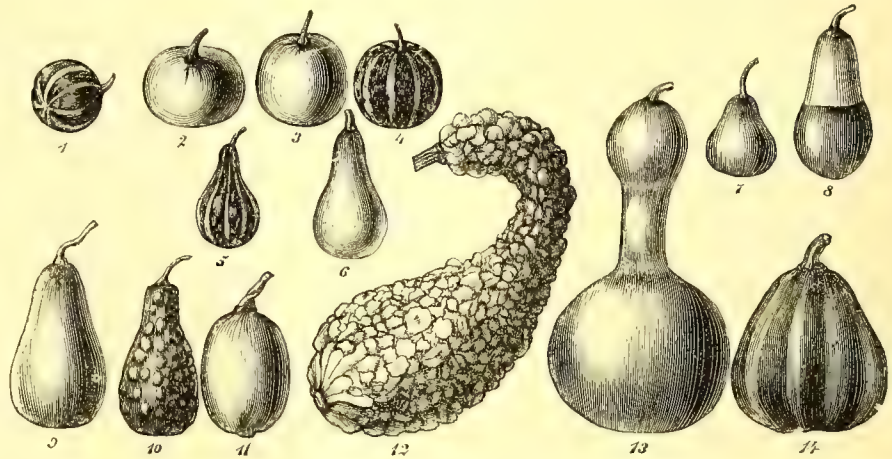
Vines Out-of-doors.—Some people write about Vines out-of-doors as if it were a thing that ought to be tried, whereas it is already tried on thousands of houses in Kent and Sussex. In walking through the weald of Kent the other day, and also through certain parts of Sussex, we scarcely saw a cottage or house that had not a Vine, in many cases well trained and intelligently pruned in

a continuous opening of 3 ft. at the top, and the same at the front. The two Peach houses are of the same dimensions, and in all respects alike, with the exception of one being forced early, and the other intended to succeed it.

Eight sectional trellises, or one under each rafter (which are 4½ ft. apart), extend from the front of the house within 6 ft. of the back wall. Each of these trellises gives 115 square ft. of training surface, together with a similar space at each end of the house. Each trellis is occupied with a single dwarf Peach or Nectarine tree, and the space thus afforded by these sectional trellises and the two ends makes altogether in each house 1150 square ft., to which has to be added the area of the back wall, viz., 40 ft. by 18 ft., equal to 720 ft., or altogether 1870 square ft. of surface available for tree training. On the other hand, had the trees in this structure been trained under the roof at the usual distance from the glass, as soon as this had become fairly covered the back wall would, of course, be so much shaded as to be of no further use for trees, so that there would only be available the area of the roof, some 40 ft. by 21 ft., which would not exceed 840 square ft., thus showing a balance of no less than 1030 square ft. in favour of the sectional trellis system. Even if it were admitted that the back wall of the house could be used for training purposes as well as under the roof, the sectional trellis system would still have a balance in its favour of 310 square ft., so that in a light and somewhat lofty structure, the sectional trellis system, which some of your correspondents have admitted to be the most ornamental, will also be found to be the most fruitful. In structures, however, in any degree deficient in light or less lofty than those described, sectional trellises could hardly be adopted, as they would necessarily be of insufficient dimensions to allow sufficient development to the trees.

To return, however, to the Peach houses at Nowton Court, it may be interesting to know the varieties which Mr. Carmichael (who is well known as an excellent cultivator and a first-rate judge of fruits) has selected to plant, and I may in the first place say that the roots of the trees are all inside, and that the borders have been formed of the best materials that could be found for the purpose. These were not very far to seek, as the natural soil here, although somewhat heavy, is of excellent quality. To begin with the early house, a Stirling Castle Peach occupies each end of the structure. This excellent variety was raised some years since by Mr. Carmichael in the gardens of Dunmore, in Stirling-shire. It is a hardy free-growing sort and an excellent bearer, well suited for either the open wall or house culture, and is especially suited for early forcing, and the fruit is of first-rate quality. Two plants of Hale's Early Peach occupy each a sectional trellis; this is a fine American variety, with medium-sized fruit of very good quality, highly perfumed, and very early; Early Beatrice Peach is also a remarkably early variety; Prince of Wales Peach, a large, fine, and now well-known sort; Hardwicke Nectarine, a fine, large, highly flavoured variety; Acton Scot Peach is a very free bearing sort, fruit rather small, but of delicious flavour; Raymaker Peach, a new variety; Diamond Peach, the fruit of which is said to be remarkably handsome, and the quality excellent. The back wall of this house is already nearly clothed by four fine standard trees, viz.: Bellegarde, a very distinct and

excellent Peach; Royal George, a well-known first-rate Peach and Belle Beauce, a very large, handsome sort, allied to the Grosse Mignonne variety. Mr. Carmichael, however, does not find; to set its fruit so freely as he could wish, and he is in hopes of securing ere long a cross between it and the Stirling Castle variety, and it is possible that this may turn out to be an improvement upon each of its parents. The last tree is the Murrey Nectarine, a very useful and well known variety. The late house has trained on the sectional trellises two Stirling Castle Peaches, two Violette Hâtive Peaches, a Tippecanoe Peach, a fine highly perfumed American variety, of a yellow or apricot colour; Goshawk Peach, a fine mid-season sort; Barrington Peach, a fine, large, and very prolific late sort; Exquisite Peach, a fine American sort, of immense size and of rich flavour; Princess of Wales Peach, a fine late sort; Frog-



Ornamental Gourds.

1, Small round striped Apple; 2, Medium-sized yellow Apple; 3, Small Orange; 4, Small striped Orange; 5, Pear-shaped striped; 6, Pear shaped white; 7, Pear shaped yellow; 8, Pear-shaped bi-coloured; 9, Pear-shaped large white; 10, Pear-shaped warted; 11, Small Lemon; 12, Summer Crook-neck; 13, Bottle; 14, Bell-shaped striped.



15, Bishop's-hat; 16, Turk's-cap red; 17, Warted sulphur yellow; 18, Onion-shaped white; 19, Custard; 20, Coloquinte bi-coloured; 21, Coloquinte green; 22, Coloquinte egg-shaped; 23, Green white striped; 24, Golden yellow bush; 25, Powder-horn.

more Golden Peach, a new variety. While the back wall of this house is also occupied by four standard trees, viz., Prince of Wales Peach, Violette Hâtive Peach, Bellegarde Peach, and Violette Hâtive Nectarine.

Orchard Street, Bury St. Edmunds.

P. GRIEVE.

Successful Cranberry Culture in England.—Among the various native small fruits which our American cousins have brought into cultivation within comparatively recent years, the Cranberry is one of the most important; we, of course, allude to the

American Cranberry (*Vaccinium macrocarpum*). It is grown on a very extensive scale in the United States, and enters largely into domestic use, the jelly made from it being deservedly much esteemed. We have seen several attempts made to grow this Cranberry in England, but they were mostly of the nature of feeble experiments. We were, therefore, surprised to find it carried out, with as much success as in New Jersey, in Ashburnham Park, Sussex, the other day. On the 9th of April, bushels of fruit could have been gathered, fruit of the previous year, and which remained after the winter, which usually leaves no sign of other small fruit. The fruit was of the usual size, and the "vines," as they are called in America, healthy and vigorous. This result is brought about by culture in peat beds, which are surrounded by water or can be readily irrigated at will. The beds are artificially made, but wherever any natural bog exists this would not be necessary. Wherever there is a small stream very simple contrivances would suffice to irrigate a few peat beds which would produce an annual supply of these berries. We have so many fruits now that one more or less is not of much consequence, and yet this is distinct from all, and may be attractive to many from its peculiar flavour. That it can be perfectly grown in England is certainly demonstrated in Ashburnham Park.

Sunless Lean-to Fruit Houses.—I have here a fine house which, I believe, was erected five years ago. It has been planted with old Apricots lifted from the outside borders; they are trained on trellises the same as Peaches. I understand they have never borne a crop since the first year they were planted; they generally flower well, but never set. The reason, I think, is owing to the wood never becoming ripe. As the house is a lean-to structure running due north and south, it never gets the sun after 12 o'clock in midsummer. There is a 4-in. flow and return pipe which I used last season to the best of my ability, but the bloom still seems to drop. I shall be indebted to some of your correspondents for a hint as to how I can best utilise the house, and what fruit will succeed in it.—LEARNER, *Haddington*.

KENTISH FRUIT GARDENS.

CONTINUED dry weather has afforded an unusually favourable opportunity for getting fruit gardens thoroughly clean before much leaf growth has rendered the shade so dense as to make the work of eradicating weeds difficult. Even the various Bindweeds may be destroyed by persistence in keeping the top growth cut closely down. In newly-formed plantations of fruit trees and bushes it is customary to plant one row of Potatoes between each row of bushes for the first few years, and if the ground is well cultivated and manured, a large crop of Potatoes may be taken off without detriment to the trees. Where trees or bushes planted during the late winter or spring have not already been top-dressed with manure, that should be done without delay in order to retain moisture in the soil; and I may add that in fruit culture in Kent top-dressings of manure are much more practised than in any other county I have yet seen, and very little, if any, is applied at planting time, the object being to get fruitful trees as quickly as possible. This is best effected by planting in soil only moderately enriched, and afterwards adding as a top-dressing stimulants as they appear to be needed. There can be no question that in keeping the roots near the surface by means of rich top-dressings lies the great secret as regards fertility.

This is the best season for grafting, which, owing to the weather being favourable, should be completed as soon as possible. Where the stocks have been roughly headed down during winter proceed to select all the shoots required for forming the tree and saw them off evenly, then insert the grafts, and clay them over as soon as possible, leaving the small spray-like shoots below the grafts to provide leaf growth, as when the tree is entirely destitute of leaves (except what the grafts produce), root action is considerably impaired. Where Strawberries are grown, either between bush fruits or in open beds, they are now being lightly hoed, and then mulched with short litter, which is spread all over the beds, and then worked in between the crowns by the hand. The manurial properties get washed down to the roots, and the straw is left clean and sweet for the Strawberries to rest on. They should always be dressed in this way before the plants are in bloom, for afterwards it is difficult to work it in amongst them without injury to the crowns. Raspberries should have all surplus canes springing from the base that are not required for next year's bearing wood broken off below the ground as soon as they can be seen, in order to concentrate the strength in those left. If not already done a mulching of rich manure placed between the rows will greatly help this crop, as the Raspberry is a gross feeder, and very easily affected by drought. Gooseberries are now in full bloom and showing a fine crop. This is one of the first of fruit crops for gathering, and in this locality, where the bushes are planted in sheltered positions, very remunerative prices are realised for this fruit in a green state. As soon as they are large enough for tarts, growers get baskets and packing materials in readiness: small rods of Hazel, Chestnut, &c., are split up in wet weather into convenient lengths and sizes for sieves and half sieves, tied in bundles and laid in a loft or out-house to dry, and a few days before they are required for use they are laid in a pond or tank of water to soak, when they become pliable and so tough as to withstand very rough usage without breaking.

Wall trees are not grown as a speciality in many fruit gardens for profit, but all such spaces as are available on farm buildings, houses, and Hopkilns are utilised for Cherries, Plums, or the best sorts of early or late Pears, the Jargonelle being a great favourite. But amongst all the fruits grown none has kept pace with the Morello Cherry, and the demand always exceeds the supply. Large quantities are grown as dwarf bushes on the Mahaleb stock, and very fruitful they are, but I feel certain that walls might be profitably devoted to Morellos, which area never failing crop, on land too light and stony for many other fruits; with but the minimum attention which they get as to pruning and training on our cottagers' houses, they produce crops that in the aggregate realise more money than any other fruit with which I am acquainted that is grown for profit.

Linton,

JAMES GROOM.

GOURDS.

Most horticulturists—amateur and professional—are to a certain extent familiar with Gourds, but few have any idea of the immense variety of them that exist, or of the varied, not to say comical, forms and shapes which some of them assume, or of the varied weights which they attain; some, the Ohio Squash, for instance, turn the scale at 150 lbs., and from this there is every weight downwards to the small Orange and Pear-shaped Gourds of about 1 lb. Generally, they are grown for ornamentation only, but the major part of the varieties are equal to the best Vegetable Marrows for culinary purposes. Taking this latter fact into account, they are worthy of extended culture, serving, as they would, at one and the same time two purposes. Amongst the best that may be so used are the various Custard and Melon forms, and some few of the larger Pear-shaped kinds. The smaller striped orange and green kinds are only fitted for ornamentation; they make a very handsome summer covering for any old wall, fence, or trellis, and, being of the easiest culture, might well be allowed to share such positions along with Scarlet Runners, Convolvulus, and Canary Creepers used for a similar purpose. Any who may be contemplating so using them during the coming summer should sow them at once in moderately stiff loam, putting a couple of seeds in a 3-in. pot, and plunging them in an ordinary manure frame, in which they will grow on the same as Cucumbers. Towards the end of May they should be gradually inured to bear full exposure, and then planted out on ridges the same as Vegetable Marrows. In warm sunny positions, or at the foot of south and west walls, they may be planted on the level. They should be watered freely during summer, and be kept thickly mulched with good manure, for, being ravenous exhausters of the ground, unless they are well satisfied in this respect, mildew is sure to prove fatal to them.

II. W.

[For the accompanying illustrations we are indebted to Messrs. Haage & Schmidt, of Erfurt, who, as well as most of our own seedsmen, grow large collections of such things.]

THE KITCHEN GARDEN.

RAISING CUCUMBER PLANTS.

THE old Dutch method of forcing by means of hot manure is not even in these advanced times to be despised by those who are compelled by circumstances to be economical. There is no artificial warmth that can be produced at so little expense, and in middle-class gardens the Cucumber frame is still largely in use. As regards varieties, no Cucumber grown in a general way is more trustworthy than the Telegraph. It has deviated into several forms, all more or less good, but perhaps the original is still the best. The majority of small Cucumber growers raise their plants from seeds. Of course where Cucumbers are made a speciality of, as they are in some market nurseries, raising plants from cuttings keeps the stock pure, though none but large growers can do this. I visited a large establishment some time ago in which Cucumbers are a special feature. Here, whenever the fruit becomes unprofitable, a small propagating house is filled full of cuttings; hundreds of them (I was going to say thousands) are simply dibbled into the light soil of which the shallow beds consist, and as soon as they are rooted they are potted and prepared for the winter beds. But most people are satisfied with raising their plants from seeds, usually in a small bed put up for the purpose before the real Cucumber bed is made. Where only a limited number of Cucumber plants are required it is better and cheaper to buy two or three than to raise them at home, but where they must be raised at home a small bed should be made about a fortnight before the plants are required. This bed should be large enough to support a one-light frame, and be made of sufficient depth to produce a bottom heat of 80° or 85°. If time is of any importance—which it generally is—it is better, before sowing, to soak the seeds in warm water till they burst the cuticle and the radicles are protruding; then, having some pots of warm soil ready to receive them, place one seed only in each small pot, using light sweet soil, and plunging the pots immediately in the prepared hotbed. Some have an idea that soaking seeds in this way tends to weaken the vital powers of the plants, but it does nothing of the kind; on the contrary, such plants are usually stronger than if the seeds remained long in the soil, which, if sown without soaking, they do occasionally, especially if they are old. Even good seeds sometimes perish when planted if the warmth or the character of the soil is not just suitable, or if the watering-pot has been used too freely, but I never knew a seed that had any

growing power at all fail to germinate if started in warm water about blood heat, such as one could bear the hand in without inconvenience. No one would, I suppose, from choice plant weakly plants of any kind, and it is wrong in the case of Cucumbers above and beyond most other things. The weakly plant never overtakes the robust one.

In Planting out finally in the frames some judgment is required just to hit upon the right time to plant, and in the manipulation of the linings afterwards to secure a steady temperature. The inexperienced are usually over anxious to be doing, and when failure does occur it is generally caused by being too hasty in planting before fermentation has driven off the rankness from the manure. Whenever the drops of moisture that are found condensed on the sash-bars inside the frame early in the morning are clear and free from all colouring matter, it is a sign that the bed has lost its scorching heat, and parted with the death-dealing gases which are so fatal to vegetable life. There are ways of keeping down strong heat. A layer of turves, grass-side downward, all over the bed before the soil is placed in it will have a tendency to do this, and there are other things that might be mentioned which operate in the same manner, but if the planting is delayed till the condensed moisture is colourless there will be no danger. Where a considerable proportion of the material employed in making up the bed consists of tree leaves, there will be no danger of overheating.

The best Soil for Cucumbers is what is known among gardeners as maiden loam—that is, the top of an old pasture—enriched more or less, according to its character, with old hot-bed or any other kind of well decayed manure. In chopping and mixing the soil, a sharp look-out must be kept for wireworms, and where there is the least suspicion of their existing in a Cucumber bed, traps of Carrot or Potato should be inserted beneath the soil and examined frequently, and the worms destroyed. Soot is at all times and under all circumstances a good thing to mix with soil for Cucumber growing. When the Cucumber plants have made two or three rough leaves, the heart of the leader should be pinched out in order to insure an abundance of shoots to fill the frame. This stopping will in most instances have taken place before the plants were turned out. In most cases, one strong plant in the centre of each light will be better than more, although when the lights are of more than average size, two plants in each will fill up quicker. A great bulk of soil is not necessary for Cucumbers to begin with, but the plants have a habit of working their roots out through the surface, and to make the most of these surface roots frequent top-dressings are necessary. An abundance of water both at the root and in the atmosphere is absolutely necessary; without it there cannot be the rapid growth which is so essential to tenderness and quality. In the management of Cucumbers, steady, regular attention is required rather than any great amount of labour. When one understands what is necessary to be done, the time consumed in doing it need not be great. It is never advisable to permit a great extension of growth, which must afterwards be removed with the knife; better pinch out the points of the shoots frequently, and always pinch one point beyond each fruit. To fill the frame too full of foliage and growth must lead to premature decay and debility. The fruits must be cut regularly, and before they are quite full grown, whilst the bloom of youth is on them. If they come on faster than required they will keep a long time with their bottom ends inserted in water in a cool room or cellar. Sweet, pure air is just as necessary for Cucumbers as other plants, only a moist atmosphere being so essential for such large-leaved plants, it is found better in practice to shade in bright sunshine and give less air, the subdued light and the moisture and warmth producing rapidly evenly swelled fruits. Sometimes, too, when Cucumbers are grown in strong light in bright weather with insufficient shading the fruit becomes bitter. Whenever this happens the bitterness may be removed by increasing the shading and the moisture. In very many gardens in spring the Cucumber frame is utilised for striking cuttings and raising seeds, and there is no objection to this where care is exercised, but they should not be permitted to remain in too long, and a constant watch should be kept for insects so as to attack them by fumigation or dusting a little tobacco powder on them before they become strong and numerous. It now seems to be established that the Cucumber disease, which is usually so troublesome when it makes its appearance, is the work of an insect, but as far as our knowledge goes at present the only way of effectually dealing with it is to stamp it out by utterly destroying everything in connection with the diseased plants, and start afresh with everything clean. I need not refer more fully to this disease, its chief characteristic being gangrenous discharges from the skin, which make the fruit unusable; indeed, I don't think such Cucumbers should be used in any way, as they are unwholesome.

E. HOBDAY,

SEAKALE FOR FORCING.

SEAKALE is one of our most useful vegetables for winter and spring use, and most profitable if properly treated during the growing season. It may be grown from seed sown in March or early in April in drills 9 in. apart, or in beds 4 ft. wide sown broadcast. The young plants must be thinned out when large enough several inches apart, in order to give them room the first season. In the following spring they will be large enough to transplant. Before lifting prepare a piece of ground by trenching it deeply, and well manuring it with some rotten farmyard manure. Having the ground ready, lift the plants carefully with a digging fork, for if not carefully lifted the roots are very often broken. Cut off all that are damaged with a sharp knife before planting. If grown for forcing indoors, plant 12 in. row from row and 9 in. plant from plant, and if liberally treated during the summer, they will be strong enough to lift in the autumn for forcing. For making a plantation for forcing with hot leaves, plant the rows 3 ft. apart and the plants 2½ ft. asunder, in order to give plenty of room to cover the plants with pots and hot manure. I prefer three plants in each clump about from 3 in. to 4 in. apart in a triangle, so that the Seakale pot will cover them.

Seakale can also be propagated from strong roots selected when lifting the plants for forcing in the autumn and winter. Cut all the strongest roots into lengths about 9 in., and use the young roots as small as a quill pen for planting; they produce plants fit to force during the winter. Be careful to cut the tops or thick end of the small roots off horizontally, so that the plants will have a good crown, and cut the small ends off slantingly, for by doing so I find that the thongs root more freely than if cut level like the tops. I always lift my plants for forcing indoors as soon as the leaves die down in autumn. In lifting, I commence at one end of the plantation and take out an opening deep enough to get below the young roots and so lift all my plants. When the sets are ready for planting, I tie them into bundles with tar twine, and making a trench in a spare corner of the garden I lay in the bundles, covering the crowns with some fine soil to encourage them to make a callus; then I cover them with leaves or dry straw to keep them from freezing during the winter; I also lay my old plants into trenches and cover them with leaves, lifting them for forcing as required. The ground to be planted I trench early in winter, so that it may be exposed to the frost. As Seakale grows best in good strong land, if the soil is very light it is well to top-dress with clay or similar soil, to be dug into the ground when trenched.

Planting.—Early in April is a good time to plant, and the thongs will be found to have formed young crowns and young roots during the winter. When ready to plant, rake the ground fine with an iron rake and plant the thongs 12 in. row from row and 9 in. plant from plant. All the plantation will require during the summer will be to keep it free from weeds and the surface open; give a good dressing of guano or some artificial manure during the summer, for Seakale is a gross feeding plant and requires plenty of nourishment in order to get strong heads for forcing. As soon as the frost kills the leaves in autumn, the plants will be ready to lift for forcing, which may be done in the Mushroom house, or in any place where the tops can be kept dark, so that the Kale may be blanched white. A temperature of from 50° to 60° will be sufficient. The plants may be put in large pots or boxes, and covered with pots of the same size. The finest blanched Seakale is grown in pits heated with hot water tanks, which are used in most of the establishments in which Seakale is grown largely for market. When grown in pits, put a few inches of soil over the slates or boards which cover the tank. Commence at one end of the pit and lay in the roots a few inches apart, covering the crowns over with some fine soil, so that they will stand quite upright; give the soil a thorough soaking with water, and have some dry soil ready to cover the plants over 9 in. deep. In a short time, according to the temperature maintained, the plants will soon begin to grow, and as soon as you see the tips of the leaves coming through the Kale may be cut, and it will be found to be finer blanched and of better quality than that forced outdoors or in pots or boxes. We can have our first crop of Kale early in December, and by having plenty of plants the supply can be maintained till late in April by having the latest plants laid in some cool place such as a border at the back of a north wall. I find Seakale to require a good deal of moisture at the roots when forced in pots or boxes, for if not well supplied with water it is always of an inferior quality. The roots planted out after forcing are just as good the second year as the first if care is taken to preserve the roots from frost when taken from the forcing pots or boxes.

WM. CHRISTISON.

The Rookery, Bromley Common.

The Hardest Broccoli.—Last season we sowed and cultivated our usual number of Broccolies. The plants numbered many

hundreds, and the varieties about half-a-score, including Backhouse's, Osborn's, Snow's, Cattell's, Gilbert's, Leamington, and others. Their growth was satisfactory until the weather became severe, when they all stood still, and at the present time nothing is visible of them except black, withered stems, with a cluster of rotten leaves at the end, from which we fully expected to cut some choice heads. Not one in a hundred shows a vestige of green. Their destruction is most complete. Still, we are not without prospects of yet cutting a considerable number of fine Broccoli heads, but only from one variety, and one alone, and that is Sutton's Late Queen. This fine late variety has stood without flinching, or, indeed, losing a single leaf, and the plants are now as healthy as they were before we had any severe weather. Most acceptable it would have been had it been "turning in" at the present time, but it will be none the less so when its heads do appear in a month or so hence, as vegetables of all kinds will still be scarce and valuable at that time.—J. MUIR, *Margam, Taibach, Glamorganshire.*

Salt on Asparagus.—We have reason to believe that the application of salt to Asparagus has been of little, or no use. We read in a contemporary some time ago that the writer also doubted its use, but said that in any case it could do no harm. We are inclined to doubt this, because we saw a piece of ground the other day where old Asparagus beds had long existed, and which was in a sour and wet state, in a garden otherwise dry and workable. The value of the salt would be much more effective applied along with decomposed stable manure.

SEASONABLE WORK.

Kitchen Garden.—However favourable a dry time may have been for getting in seeds of all kinds, keen biting east winds, accompanied by sharp morning frost, have up to the present time prevented them from germinating, and until we have a change to more genial weather, there is slight probability of the young plants showing above ground. Fortunately, well cultivated soil is in the best possible condition for the reception of roots of all kinds, including Seakale; Rhubarb, which should be well mulched; Horseradish, a much neglected crop; Jerusalem Artichokes, and the main crop of Potatoes. In the management of the latter crop a complete change of seed cannot be too strongly advocated. An abundance of room is another important point, and every tuber should be sound and on the move before it is planted. Successional crops of the best kinds of Marrow Peas, Broad Beans, and Spinach may now be sown once a fortnight, and in order to be the better prepared for the busy time which must come, late growing kinds of Peas may be sown immediately after they are sown, or, properly speaking, planted, as the finest pods are always obtained from broad thinly seeded drills, and, where practicable, single rows will be found more productive than a series of rows running parallel with each other. If the main crop of Carrots has not been sown, the seed should be got in by the end of the month. For first use Nantes and Early Horn are unsurpassed, and for the general crop James' Intermediate is invaluable. In old gardens the Carrot crop often gives much trouble, and frequently fails altogether. Where this is the case, the soil which has been manured for a preceding crop should be deeply trenched in the autumn, and when well pulverised a good dressing of wood ashes and soot should be forked in some little time before the period arrives for sowing the seeds. This should not be performed too early, as quick growth is an important item; the soil should be in good working order, and a little finely broken virgin loam should be used for filling in the drills. In warm gardens a few dwarf Beans may be planted in a sheltered place, and a small breadth of Red Beet may be sown, but the first week in May is quite early enough for getting in the main crop of this indispensable esculent. Where winter salads are in demand, the useful Chicory must not be overlooked, as the roots may be stowed away for forcing in the Mushroom house when Endive becomes scarce. If not already done, the manure intended for Celery should be prepared, by the addition of a dressing of salt and soot in sufficient quantity to destroy worms and slugs, when it may be turned ready for use. If the ground intended for the main crop is unoccupied, the Brassica tribe having been killed off take advantage of the present lull for throwing out the trenches, and plant surplus Cauliflower plants and Lettuces along the ridges. These will turn in early and help to stop a gap where large families look for an abundance of early vegetables. Complete the burning and gravelling of walks, and apply salt where labour is economised by the use of stone or tile edgings.

Forcing Ground.—The past winter and present backward spring have proved the importance of cold pits, frames, and cap glasses for bringing forward a good supply of early succulent salads and vegetables. At the present time they will be full of Potatoes, Carrots, Turnips, crisp Lettuces, and a host of spring-sown plants of Cauliflower, including Veitch's Autumn Giant and Dickson's Eclipse, two of the best varieties in cultivation, Brussels Sprouts, and Cos Lettuce. The great point in the management of these inexpensive structures is ventilation through the early part of the day to secure stout, stocky growth, followed by early closing with solar heat on fine afternoons. The drying winds and bright sun will have prevented full exposure of the tender plants, but a healthy growing atmosphere may be maintained by tilting the lights on the south side. See that Potatoes and Carrots are copiously supplied with tepid water, choosing the early part of the day, as it is important that the foliage becomes dry before night. In the warmest section look well to Tomatoes, Capsicums, Vegetable Marrows, and Cucumbers intended for planting on ridges of half-exhausted manure from the Seakale and Rhubarb. Pot on the plants as they require it and guard against having them drawn by keeping too close through the early part of the day. French Beans enjoy plenty of heat and moisture in a pot which can be well ventilated on the ground line to prevent a stagnant atmosphere. Make successional sowings in pots or otherwise for preceding the first crop in the open air, which will be late this season. A good batch sown in small pots for planting in frames after Potatoes or on early borders where they can have temporary protection will do good service. A good Mushroom bed should be made up in a dry shed facing north. Almost any kind of short fermenting manure with an admixture of turf will do for the body of the bed, and this may be faced with horse droppings and stiff loam for the reception of the spawn.

Herbs.—In many pretentious gardens herb beds are very often neglected or left to take care of themselves, the same subjects being allowed to occupy the same spot from year to year until eventually they die out and disappear. A

warm convenient corner is generally selected, and being strong, exhaustive growers, such things as Mint, Tarragon, Sorrel, Camomile, and Pennyroyal should be broken up and replanted either on fresh ground or with a good addition of new soil annually. We sometimes hear gardeners say Tarragon positively refuses to grow and live through a winter, but if replanted in fresh soil every spring and allowed to carry all its old stems until new growth starts, this useful herb, like many hollow-stemmed, herbaceous, flowering plants, will pass unharmed through the wettest winters. Just now the old flower-stems on our bed are 4 ft. high, and young growths like quills will soon be ready for use. Chervil also likes change, and in order to allow it to accommodate itself we hang a few seed-bearing stems about in pyramidal fruit trees and always find an abundance of healthy plants. Thyme, one of the most useful herbs grown, very often falls off before the end of a severe winter, but if sown annually and planted out in new stony soil at the foot of a west wall, it will thrive and set the frost of a winter like the past at defiance. It is the constant cropping and picking which injures Thyme, and to avoid this the young plants should have a year's grace before they are interfered with.

W. COLEMAN.

SOCIETIES AND EXHIBITIONS.

NATIONAL AURICULA SOCIETY.

APRIL 19.

THE annual exhibition of the southern section of the National Auricula Society, which was held on Tuesday last at South Kensington, was in every way excellent, though perhaps the number of plants shown was scarcely so large as last year; nor were the plants of such high quality as usual, a circumstance doubtless attributable to the unfavourable weather lately experienced. The northern growers were more numerous represented in the competitive classes than southern ones, though few indeed were these, and it is a matter of regret that exhibitors of the Auricula should, as on this occasion, scarcely exceed half a score. There was, however, a fine display, the exhibits occupying one side of the conservatory, while the other side was rendered gay by contributions from various nurserymen.

Four collections of twelve dissimilar varieties were shown, and the first and second places were closely contested by the Rev. F. D. Horner, Kirkby Malzeard, Ripon, and Mr. Douglas, Loxford Hall, Ilford. The former had finely bloomed examples of Ringdove, Frank Simonite, Heroine, Ajax, Lancashire Hero, Charles J. Perry, G. Lightbody, Intrepid, and two or three seedlings. The best of Mr. Douglas' plants were Lancashire Hero, George Lightbody, Silvia, Glory, Pizarro, Acme, Smiling Beauty, C. J. Perry. The varieties Freedom, Mrs. Douglas, Mrs. Dodwell, Lord of Lorne, and a few unnamed seedlings were included in the other collections.

The class for six plants was represented by five exhibitors, Mr. Horner again showing the finest; Sapphire, a beautiful self, Phantom, Ajax, Frank Simonite, and Lancashire Hero were particularly fine in this collection. The Loxford Hall collection was second, and was likewise fine, but one or two of the other lots were decidedly below mediocrity. There were five exhibitors also in the class for four varieties, in which Mr. Penson's gardener showed the premier collection, representing five examples of the old Col. Taylor, G. Lightbody, True Briton, and a beautiful self named Vulcan. Mr. Douglas and Mr. Simonite had in the next two best collections good plants of True Briton, G. Lightbody, Col. Taylor, Ellen Lancaster, Frank Simonite. Nine pairs were shown, the best from Mr. Douglas, who had Lancashire Hero and Smiling Beauty; Brilliant and F. Simonite shown by Mr. Simonite were second; Ringdove and Lancashire Hero by Mr. Horner were third.

There were four classes for single specimens of green, grey, and white-edged varieties and selfs each, representing eight prizes. About two dozen green edged were exhibited; Lancashire Hero took the first, sixth, and eighth prizes; Prince of Greens, the second; Talisman, the fourth; and Col. Taylor, the seventh. About a score of grey-edged sorts were shown. G. Lightbody won the first, second, fifth, and seventh prizes; Alexander Meiklejohn, the third; Dr. Horner, fourth; C. E. Brown, sixth; Confidence, the eighth. Some three dozen white-edged kinds were represented. Smiling Beauty took the first four, sixth, and seventh prizes; True Briton, the fifth; and Ann Smith, the eighth. The selfs were also numerous, there being upwards of forty plants staged. Blackbird took the first; third, and fourth prizes; Lord of Lorne, the second and sixth; a seedling, the fifth; Pizarro, the seventh; and Sapphire, the eighth.

There were three collections of 50 plants, the competitors being Mr. Douglas, Mr. Turner, and Mr. Llewelyn, who took the prizes in the order mentioned. The Slough collection presented a brighter appearance than that from Loxford Hall on account of the many beautiful selfs and Alpines it included, particularly the lovely C. J. Perry, though Mr. Douglas' collection was more varied and embodied some fine plants.

The Alpine kinds were much admired, as they usually are, and there was a good competition for the prizes. The class for twelve

was represented by three collections, the best being from Mr. Turner, whose most conspicuous plants were Mrs. Dodwell (new), Mr. Thomson, Diadem, Unique, Evening Star Rembrandt, and some very fine unnamed seedlings. The collections of six plants were likewise fine. Among the five competitors, Mr. Douglas led with beautiful examples of Mrs. Llewelyn, Queen Victoria, George Lightbody, and three seedlings. In the class for single specimens of alpine varieties with gold centres there were twenty plants shown. Diadem won the first, followed by a beautiful this year's seedling, Col. Scott, President, and Diadem. There were a dozen plants with white or cream centres, Philip Frost, George Lightbody, and Selina being represented finely.

Polyanthuses were not numerous, there being only three collections each in the classes for sixes and threes. Exile, Sunrise, Lancer, Cheshire Favourite, George the Fourth, East Lincoln, all included among the best, were remarkable for their high quality. The winning plants among the fifteen single specimens shown were Exile, John Bright, G. Buck, Lancashire Hero, and Sunrise.

There was a class for the fancy varieties of Auricula which are more singular than beautiful, and there were only two exhibitions of twelve plants each. All the flowers were of a yellow hue; some of the shades were suffused with a dirty greenish shade. Fancy Polyanthuses, and double and single Primroses were shown beautifully by Mr. R. Dean for the first prizes, and were much admired for their bright and varied hues. Among the Primroses, those named Warrior, Beatrice, Hussar, Emmeline, Erminia, Purple Queen, and Double Lilac were particularly fine, as were likewise Polyanthuses Viceroy, Meteor, Sovereign, Bridesmaid, Harlequin, Cloth of Gold, Grenadier, Ambassador, Gertrude, and Buttercup. The class for twelve hardy Primulas was represented by only three collections, in which *P. amona*, *viscosa*, *denticulata rosea*, and *intermedia* were the finest.

There were numerous new Auriculas exhibited, but very few of them up to the required standard, although those few were considered an advance on existing varieties. In the green-edged class, Mr. Barlow gained the first prize with King of Greens, a distinct green edge, but rather weak in ground colour, although it has a good yellow eye and white paste. Mr. Horner gained the second prize with Intrepid, a promising flower, with correct yellow tube, good paste, black body colour, and rich deep green edge. In grey edges Mr. J. Douglas gained the first prize with Mabel, a variety which also obtained a first-class certificate and premium as the best Auricula in the exhibition. It is a cross between George Lightbody and Lancashire Hero, combining the good qualities of both parents. Hilda, a flower of the same type, but rather narrow in the ground colour, gained the second prize. In white edges Mr. Horner was first with Snowdrift, a fine, bold flower with yellow tube, good paste, black ground colour, and correct white edge. Mr. Douglas was second with Dr. Kidd, a variety of the type of Smiling Beauty, but smaller in all its parts, and the edge is more pure. Erebus, a finely formed flower, very dark in colour, with a pure white centre and yellow tube, gained the first prize and a first-class certificate for Mr. Horner, while Mr. B. Simonite gained the second with Brilliant, a reddish-crimson, with good paste and tube, and very beautiful foliage.

There was also a goodly show of seedling alpiners. Mr. J. Douglas gained first and second prizes in the gold centred section with Rosamond S. Fellowes, a very bright flower, maroon-crimson shading to reddish-crimson, neat truss and good habit; second for Minnie Coope, a very circular flower, purplish-crimson, shading to a paler colour; good truss. In the cream-coloured section Mr. C. Turner was first with Mrs. Stafford, a good round flower with cream centre, maroon-purple, shading to deep purple. Mr. Douglas was second with Edith Wynne, a very good flower, but truss, as shown, rather loose, purplish-maroon, shading to paler purple.

Mr. S. Barlow showed a splendid set of laced Polyanthuses. He gained a first-class certificate for Criterion, perhaps the best black or maroon flower yet raised; the centre, of deep yellow, is very circular; lacing good. This gained the first prize as a seedling black ground. The second prize was awarded to the same exhibitor for John Bright, a much showier flower, but one which loses a point in its angular centre. This also received a first-class certificate. In red grounds Mr. Barlow was again first with Firefly, a very good flower, having round centre of clear yellow, but the red is not so good as Sunrise, by the same raiser. Mr. Bolton was second with Regular, a small, neat flower, with good lacing and centre. Mr. R. R. Dean, of Ealing, received a first-class certificate for fancy Polyanthus Grenadier, a brilliant red variety with yellow centre.

Miscellaneous Class.—In this the exhibits were numerous, and contributed in a great measure to the attractiveness of the show, for the groups of gay flowers relieved and set off to advantage the quiet hues of the Auriculas. Mr. B. S. Williams received a silver medal for a rich and varied group of plants, and a similar distinction was awarded to a group of new and rare plants from Messrs. Veitch

& Sons. Messrs. Lane, Berkhamstead, had a fine collection of pot Roses and a similarly extensive one of Rhododendrons, for which they were awarded a gold medal. Mr. Aldous contributed a tastefully arranged group of decorative plants, among which were some fine examples of the Paris Daisy, or Marguerite, and a large bouquet composed entirely of Narcissi and Ferns, which, on account of its novel and beautiful appearance, was highly commended. The group was awarded a silver medal. Messrs. Cannell & Sons, Swanley, exhibited an extensive collection of Auriculas and Polyanthuses, and Mr. Turner, Slough, also sent a fine group, chiefly consisting of alpine Auriculas. To these exhibitors silver medals were awarded. A bronze medal was awarded to Messrs. Osborn & Sons, Fulham, for a large and well arranged group of fine foliaged and flowering plants, which also included some rare hardy flowers. There were likewise some large collections of Pansies from Mr. Hooper, Bath, and Daffodils from Messrs. Barr & Sugden, besides some excellent collections from the R. H. Society's garden at Chiswick, notably a remarkably fine strain of Cinerarias, the plants being large and profusely flowered.

During the afternoon the Rev. Mr. Horner gave a lecture on the Auricula, tracing its history from the Tyrol, in the 16th century, through the Low Countries to England, where it had its day and became neglected by florists, but was still kept up by the pitmen of Lancashire, where the flower itself and the traditional names were religiously preserved. Mr. Horner dwelt with particularity on the history of the last fifty years, and dealt specifically with all the best known modern varieties reared by that cottager or this saw-grinder, and recognised with shilling prizes at the meetings of the local north of England clubs. He gave precise definition to the number of minute points which make up the harmonious whole of an Auricula's excellence; and then, lest the weaker among the brethren should be deterred by despair of reaching the manifold perfections which some attain, he stated that it is in everybody's power who has a sweet soil, and that in town or country, in the window box or the garden, to grow the Auricula well, provided he will only bestow upon it loving care and attention.

A list of awards is given in our advertising columns.

LATE NOTES AND QUESTIONS.

Ceiling of Mushroom House.—Given a well built and planned Mushroom house with, however, only a slate roof, and which has long ago got too hot in the day time, what is best to do?—H. S. [Ceil the roof with rough plaster, or make a ceiling of some kind, and keep all offensive smelling roofing felts out of it. If the walls are outside ones and cold, insulate the beds with rough boards or double-wall it. Cold walls kill the heat; a well drained floor and double walls and roofs is the right thing for a Mushroom house above ground.—J. S.]

Plants for a Sunless Greenhouse.—Having been asked to recommend some Palms, Ferns, and other plants, including climbers, suitable for a town greenhouse with plenty of air, but little or no sun, may I ask some of your correspondents to give me the names of a few—easily grown plants would be best, not requiring much experience for their successful culture?—C. M. O.

Weeds on Walks.—Would some of your readers kindly say what is the best and cheapest method of eradicating moss and weeds from gravel walks, drives, &c.? Hitherto we have turned them each year, but find it a long and expensive process, and salt is expensive in this neighbourhood.—A. P.

Double Wallflower Harbinger.—Can any of your readers tell me where I could get cuttings or plants of this fine old dark brown double Wallflower? I shall be most happy to offer in exchange cuttings of a bright orange yellow, very double.—GIROFLE.

Ants in Ferneries.—How can I best destroy these? This spring they have played sad havoc with some of the Adiantums. Chloride of lime in its dry state and in solution has been tried, but in vain, to destroy them.—CHESTER-LE-STREET.

Kemsley & Howes' Insect Destroyer.—I can fully bear out all that Mr. R. H. Bard says with regard to the efficacy of this insecticide. I have given it repeated trials on various plants, both hard and soft-wooded, and can safely assert that it is the best insecticide I have used.—C. J. SMITH, *Dingwall House, Croydon*.

Wire Strawberry Supports.—A correspondent writes to us to say that all wire supports for Strawberries are bad, inasmuch as they cause the stalks to break, and in that way do considerable damage.

Utilising Oak Bark.—How can I convert Oak bark into tan for hotbeds? Tan cannot be got in this neighbourhood, and we have plenty of Oak bark now unsaleable.—A. B.

Cyclamen persicum.—C. B.—The flowers you send are large and of fair form, but are no advance on some of the newest varieties.

Orchids.—T. L. C.—Thanks. We are making arrangements to do what you suggest.

Beetle.—R. C. T.—It is *Niptus hololeucus*.—S. S.

Names of Plants.—W. H.—*Cattleya Trianae*, a good, but not extraordinary variety.—J. D.—*Dendrobium aggregatum* (the orange-coloured flower), *Oncidium Marshallianum* (the yellow flower).—H. W. G.—The *Heuchera* you send usually assumes the peculiar hue of foliage you allude to at this season.—*Stroud Nisbet*.—*Dalechampia* Roebli.—*Subscriber*.—*Ornithogalum nutans*, *Narcissus incomparabilis*, *Iris pumila*.—W. R.—*Saxifraga crassifolia*.—C. Bennett.—*Triteleia uniflora*, *Omphalodes verna*.—G. P.—*Pteris Kingiana*.—W. S.—A species of *Cardamine* (not edible).—T. K. Hall.—*Eschynanthus speciosus*.—W. H.—The No. 2 Orchid is *Maxillaria Harrisoniae*.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE ROSE GARDEN.

FIRST ATTEMPTS AT GROWTH.

SELDOM has the starting of Roses been watched with more anxiety than this year. So many have been killed outright, and so many more crippled, that all eyes have been bent on the plants as soon as the sun and the soft south winds began to quicken them into growth. Most of them have started; this is something, but really not very much. Thousands of Roses and other plants start only to stop, linger, and die. The roots, part of the stem, or main boughs may be dead as door-nails, and yet the genial air and warm sunshine may start the sap into motion, and clothe the bald, bare buds with lovely green hues. The Roses least likely to live are often those that make the most haste to start. Weakness, disease, are mostly impatient; health and strength less so as a rule; heads severed by sharp frost-bites from their stems; branches nipped through their bark; and wood, pith, blackened to death; these make one last vigorous precocious effort to live, and then, ere May is a week old, they are numbered with the dead. And yet a good start is a good thing; hence the importance of assisting Roses all we can to start strongly, if not early. Teas and other tender Roses should be uncovered soon, if not already exposed to the light. Choose a mild time for the operation if it can be had anyhow. As I write, a north-east wind threatens to curdle one's breath, as well as to blast every Rose leaf exposed to it, yet our Roses have been uncovered for a fortnight. During the welcome spell of mild weather we were pluming ourselves on our wisdom in uncovering. Now, well, we shall not say too much against ourselves because the Roses have caught this bitter nor'-easter; but the incident shows the difficulty of determining when to uncover. We were much startled in the process to find so many Roses cruelly cut into by the frost. It seems to have almost slain all our *Maréchal*s, whether against walls or in the open. Standards that have stood for many years are quite dead, root, stem, and top. This is a curious fact, as if the *Maréchal* had also weakened the Brier and made it more tender. Long shoots and old stems on walls have shared the same fate, and most of them are severely crippled or dead. *Céline Forestier* has also suffered very severely, and *Lamarque* and *Devoniensis*, climber and dwarf. But it is dreary work to attempt to marshal the wounded and the slain. Far more cheerful work consists in suggesting means of enabling the crippled Roses to start strong and well. Two of the most obvious are severe cutting back and the application of top-dressings to the roots. It is better to remove the frost-bitten pith and frozen wood at once; if left, it only becomes diseased as a rule, or yields flowers hardly worth the growing or cutting. Roses, ever as it were on the outlook for good things, enjoy a dose of strong liquid manure in the early spring. After such a spell of dry weather as we have lately had, such liquid dressings are the more useful. Roses root early, and hence the importance of watering them freely in good times. True, as a rule, Roses have few roots compared with other plants, and the work they have to accomplish in growth and flower; hence the greater necessity of abundantly supplying all their needs, so that each root may find a full larder for its own special wants. Liquid manure fills the root larder at once with food in an immediately available form, and hence its superiority to all other dressings. And then hardly have Roses started before the grubs and caterpillars are down on them. Grub hunting must be persistent, incessant, if perfect flowers are to be grown. Vain are the most laborious efforts above and below ground if caterpillars are to be allowed to feast on our strongest shoots and fattest buds. D. T. FISH.

Earthing up Dwarf Roses in Winter.—In THE GARDEN of April 9, Mr. D. T. Fish invites your readers to relate their experience in reference to this matter. I will therefore give mine. My Hybrid Perpetual dwarf Roses (between 4000 and 5000) are budded on the seedling Brier, and planted in a field fully exposed to the east wind. They are placed in rows 1 ft. from each other, and 3 ft. between each row. My Roses having suffered considerably during the winter of 1879 from the severity of the weather, I determined to make some effort for their protection during the past winter. With that object, I collected during last summer a good sized heap of pig manure, with which in November last I mulched my dwarfs. This

manure was covered with earth from the middle of the alleys to the height of 6 in. or 8 in., so that about 1 ft. of the Roses was covered by the manure and earth. I need not inform your readers that the frost has been intense in the midland counties. Early in March the Roses were carefully uncovered with a fork, by placing the earth back again into the alleys, but keeping the manure, which was now decomposed, on the surface to be pricked into the ground near the Roses when pruned. The result has been most gratifying. Out of the number thus protected, I have not lost half-a-dozen, and those weak plants. Far different is the case with my standards; although protected from the east wind by a wall 7 ft. high, the destruction has been immense, and the borders have the appearance (now that the gaps are filled up by fresh standard Brier stocks) of the quarters to be seen in a nursery planted with stocks to be budded in the autumn. Most of my standard Teas, although protected by hay-bands wound round the stems, and covering the union of stock and scion, are nearly all dead or dying. The survivors are *Gloire de Dijon* and its relatives. Fortunately for me, I have not trusted entirely to standard Teas, but have within the last two years added to my stock dwarf Teas on the seedling Brier, which I have been able to protect most efficiently.—A MIDLAND COUNTIES AMATEUR.

NOTES OF THE WEEK.

The Indian Strawberry (*Fragaria indica*).—This pretty trailing plant now forms one of the most noteworthy features in the Royal Horticultural Society's gardens at Chiswick, where it is grown by the thousand, and is used very effectively as a sort of fringe to the margins of plant stages; the long slender stems are laden at the same time both with bright yellow blossoms and rich crimson fruit about the size of Hazel nuts. It is also a capital subject for growing in suspended pots or baskets, and its value is increased on account of its being presentable throughout the whole year, though now it is at its best, a condition in which it will remain for three or four months to come. It is somewhat remarkable that so striking a plant should have so long been kept in the background and scarcely known outside botanical collections, but, judging by the quantity at Chiswick, it will soon become widely distributed.

Sikkim Rhododendrons at Kew.—In the temperate house some fine species of *Rhododendrons* are in flower just now, one of the finest being *R. Aucklandi*. This has pure white flowers measuring upwards of 6 in. across, and shallowly bell-shaped. As many as six flowers are produced in some of the erect clusters, a number not hitherto obtained at Kew. The unexpanded buds are tinged with red much in the same way as those of some of the Tea Roses to which they bear considerable resemblance. The bracts that protect the buds hang in long shreds after expansion, and, being of a bright pinkish tinge, are very attractive, contrasting finely with the blossoms. The leaves too, are handsome, being about a foot in length and of a deep green. Other fine species are *R. formosum*, now furnished with a profusion of white flowers of medium size nestling among the small, rich green foliage; *R. niveum*, with dense globular clusters of flowers of a purplish tinge, the leaves being large, and covered with white down beneath, hence its specific name. The large trees of *R. arboreum* are still in flower, and also a magnificent soft, pink flowered variety said to be a form of *arboreum*.

Double-flowered Lilac.—At Chiswick we saw the other day a flowering specimen of M. Lemoine's new double Lilacs. The flowers are pure white and perfectly double, produced much in the same manner as those of the ordinary kind. As the blossoms last much longer than those of the single kinds, these Lilacs will doubtless prove valuable additions to our hardy shrubs, and we hope to see them become widely distributed.

Gardenia Stanleyana.—Those who are accustomed to see only the ordinary *Gardenia* of the flower shops would scarcely recognise this singular species as its ally, so dissimilar are they in general appearance. *G. Stanleyana* is a large-growing shrub with long pinnate leaves, from the axils of which are produced the solitary flowers, each about 9 in. in length, having a long, slender, blackish tube. The corolla, which is trumpet-shaped, is white flushed with brownish-purple, and conspicuously spotted with deep chocolate. A fine plant 6 ft. high is now bearing a fine crop of flowers in one of the stoves of the Regent's Park Botanic Garden, where its culture is carried on very successfully.

Prunus triloba.—Among beautiful spring-flowering Rosaceous trees and shrubs this is certainly one of the finest, particularly the double-flowered form of it, which is more lasting than the single. The colour is a rich rosy-pink, and when the tree is in full flower, the branches are literally wreaths of colour, so thickly beset are they with bloom. It is perfectly hardy, and grows in any position, but

thrives best in a sheltered place. It is now one of the most attractive shrubs in flower in Mr. Stevens' garden at Grasmere, Byfleet.

The Rock Garden at Chiswick.—The rock garden constructed here two or three years ago has recently been added to considerably, and now forms an excellent groundwork for the successful growth of alpine plants, inasmuch as it is thoroughly drained, and a good depth of soil is given for the plants to root into, a point sometimes overlooked by those who ill understand the requirements of alpine plants, and aim only at a picturesque, or at least rustic, arrangement of the stones or other materials of which the rockery is constructed. In this case some small blocks of stone have been cemented together so as to have the appearance of large rocks, and when they have become overgrown by plants they will have a picturesque aspect. The plants, where practicable, are set in large masses, an arrangement infinitely better than dotting them about here and there, singly, or nearly so. Amongst them many are now in flower; prominent among them are various *Primulas*, *Saxifragas*, *Arabises*, *Aubrietias*, and a pretty unnamed *Iberis* from the Grecian mountains, which much resembles *I. rosmarinifolia*. These give the rockery already a gay appearance.

Tulipa Greigi.—By far the finest specimen of this Tulip we have yet seen is in Mr. G. F. Wilson's garden at Heatherbank, Weybridge, where it is afforded the slight protection of a cold frame, an almost indispensable condition to its successful treatment. The plant in question is about 15 in. in height, furnished with broad healthy foliage conspicuously marked with its characteristic mottling of rich deep brown of a pale glaucous green ground. The flower is 6 in. or 7 in. in diameter, and its brilliant vermilion-scarlet hue and deep black boss render it a magnificent object in the sun.

New Zealand Clematis (*C. indivisa*).—This charming greenhouse climber is among the more noteworthy of the plants in flower just now in the temperate house at Kew. The flowers, which are about the size of a crown-piece, are set in graceful profusion on slender stalks hung all along the slender twining stems. The blossoms are white except the central tuft of stamens, which have a crimson shade. It is an excellent plant for training to a rafter or pillar, and is of easy culture if planted out in a well drained border of rich soil. In some localities it is almost hardy, but rarely flowers freely except under glass. An excellent plate of this beautiful shrub was given in *THE GARDEN*, Vol. XII., p. 400.

Anemone coronaria and its Varieties.—The finest display of these I have ever seen may now be witnessed at Glasnevin. The variety is endless and the colour superb; some of the double forms have flowers as large as *Pæonies*, but they are not nearly so beautiful as the single sorts; the colours of some of the latter are so intense, that the best forms of *A. fulgens* pale before them. It is quite singular that the brightest shades are always to be found in the single flowers.—T. SMITH, *Newry*.

Petræa volubilis.—This lovely shrub is now one of the most attractive sights in the Royal Botanic Garden, Regent's Park. It covers a large space under the roof of the conservatory, and is literally a mass of bloom, the long racemes of deep purple flowers set in the mauve-tinted star-like calyxes being extremely beautiful. Such a floral sight as this is seldom witnessed, and we know of no other place where this so rarely grown South American shrub succeeds so finely. There is also a pure white-flowered variety of the *Petræa* in the same house.

The Whipcord Saxifrage (*S. flagellaris*).—On the rockery at Kew there is a bright little tuft of this rare alpine plant, the golden flowers of which have an effective appearance among the other kinds. It forms dense rosettes of leaves, that throw off runners which root at the tips, and so the original plant soon spreads into a tuft. Each little rosette sends up a dense cluster about 2 in. high of flowers $\frac{1}{2}$ in. across. At one time it was considered a difficult plant to grow, but it is found to be a rapid grower in any open position.

Triteleia uniflora alba.—This is deserving of all praise. As seen just now at Glasnevin, it is certainly the most showy white flower in the garden. Large clumps of it occur at frequent intervals, and, being quite covered with its charming satiny-white blossoms, were most attractive. In *Newry* it does not seem to flower so freely; perhaps we are a little wetter than about Dublin; but then nearly all things do well at Glasnevin.—T. SMITH, *Newry*.

Pontederia (Eichornea) azurea.—This beautiful stove aquatic plant is again in flower in the Victoria Regia house in the Regent's Park Botanic Garden, to which we believe it was originally sent from its native habitat in Brazil some two or three years ago. The colour of the dense clusters of flowers, which float on the water, is a rich purple, and highly attractive. It was figured in *THE GARDEN*, Vol. XVII., p. 220.

Dwarf Cinerarias.—Those who can see beauty in flowers which are not large and perfectly circular, should grow the dwarf strain of *Cinerarias*, which are much more showy and more suitable for general decorative purposes than the florist kinds. At Chiswick there is a houseful of fine plants of these dwarf sorts, which for a long time have been very attractive. They scarcely exceed 1 ft. in height, and are profusely flowered, the blossoms being borne in broad flat heads just over-topping a healthy tuft of foliage. The colours are quite as varied as those of the larger-flowered strains, and a packet of seed will produce infinite variety. There are likewise at Chiswick some plants of a Continental strain even dwarfer and more compact in growth than the Chiswick raised plants.

Erythronium americanum.—This beautiful little hardy bulb is not so well known, it seems to me, as it deserves. It was sent me last autumn by Messrs. Woolson, of Passaic, New Jersey, U.S.A., and is now in bloom. It has a bright yellow Lily-like flower, with broad, spotted, glaucous leaves, and in pots in a cold frame succeeds to perfection. In America I believe it is quite hardy.—GIROFLE.

Finely-flowered Rhododendron.—There is in flower here a specimen of the Indian *Rhododendron Campbelli*, which for floriferousness, considering its size, has not, perhaps, been surpassed. It was presented to me, a tiny seedling, by the late Mr. Hugh Low soon after the introduction of the species into this country. After growing it on several years in a pot, it was finally planted out where it now stands. It is 12 ft. high and nearly as much through, and it has now expanded on it 722 trusses of from 12 in. to 15 in. diameter each—a gorgeous sight. It is growing on the edge of a small pond about 18 in. above the water, over which are pendent a portion of its branches, and I notice on this side, although north, the flowers are the first to open. It is shaded from strong sunlight by a row of large Portugal Laurel trees.—J. M., *Charmouth, Dorset*.

A Rose House has lately been formed in the Royal Horticultural Gardens at Chiswick, in the place of the old orchard house, a spacious span-roofed structure erected many years ago for the growth of Peaches, Nectarines, &c., under glass. Large beds have been formed along the centre and the sides, in which are planted most of the best sorts of Tea Roses, which will be trained to trellises and pillars. When these become established this house will be one of the most interesting in the garden, and certainly more profitable than as an orchard house.

Trillium atro-purpureum.—This is an excellent companion for the lovely white *T. grandiflorum*, now becoming so popular. The flowers are quite as large as the white kind, but the petals are narrower and of a rich, deep reddish-crimson, forming a fine contrast to the handsome, broad foliage which encircles them. We saw a fine plant of it on Mr. G. F. Wilson's rockery at Heatherbank, Weybridge, the other day, thriving under the same conditions as *T. grandiflorum*, on the shady side in a moist, peaty soil. *T. sessile* is somewhat similar, but less showy, though the foliage is equally handsome. This and a smaller species, *T. erythrocarpum*, we saw at Mr. Stevens' garden at Grasmere, Byfleet, where they thrive on the rockery.

Plants in Flower at Glasnevin.—These include the following, all of which have been entirely unprotected during the winter, viz., *Anemone Robinsoniana* (fine), *Cassiope fastigiata*, *Bryanthus erectus*, *Rhododendron Chamæcistus*, *Iris cinerea* (dwarf, and beautiful), *Scilla amœna*, *Myosotis Weirleigh* Surprise, *Pulmonaria virginica*, *Uvularia grandiflora*, *Ranunculus aconitifolius*, *Geum repens*, *Schivereckia podolica*, *Orobis vernus* fl.-pl., *Lathyrus Sibthorpi*, *Narcissus triandrus*, *N. odoratus* fl.-pl., and *N. abscissus muticus*. The double *Orobis* and also the single one in large masses are very beautiful, and are just now quite a feature. The *Epimediums* are pretty, especially *E. colchicum* and *E. rubrum*. *Bryanthus erectus* and *Cassiope* are blooming well, but difficult to establish. *Pulmonaria virginica* and the *Uvularia* both like a cool, damp, sheltered spot. I envy Mr. Wilson his success with *Epigæa repens*. I have been able to keep it alive, and felt quite content till I saw the note respecting it from Heatherbank.—J. W. MOORE.

Anemone Robinsoniana.—This lovely little hardy flower does not appear to be so widely known as its merits richly entitle it, though it has been in the country for years. To those who do not know it, it may be well to mention that it is intermediate in character between *A. apennina* and *A. nemorosa*; indeed, it is considered to be a variety of the latter, having larger flowers of a delicate soft shade of mauve. At Kew there are some bright healthy tufts of it, which are highly attractive, and one we observe has the name of *A. alpina* attached to it, which is calculated to mislead those who do not know it. In the *Anemone* bed there is also a species called *A. Hudsoniana*, remarkable for the bright violet-purple hue of its large flowers.

Eranthemum cinnabarinum.—This makes a good stove plant, on account of the abundance of its showy blossoms, which it

produces for several weeks in spring. They are a soft violet-purple, with a deep crimson blotch in the centre, and are borne on long branching stems rising well above the foliage. Its only detractive character is its straggling growth, but this might probably be remedied by propagating annually young plants. Several plants of it are in flower at the present time in the Palm house at Kew, where it has a gay appearance. It is figured in *THE GARDEN*, Vol. XVIII., p. 230. There is a similar, but inferior species also in flower at Kew named *E. purpurascens*, from, we believe, the same locality.

Silvery-leaved Kerria.—This charming shrub is now among the most attractive objects in the temperate house at Kew, where it is completely covered with its golden-yellow blossoms. These, and the pretty variegated foliage, render it extremely showy. The flowers are single and somewhat smaller than in the type, but they are produced far more abundantly, thereby amply compensating for lack of size. It is perfectly hardy, but it flowers most profusely under glass. The plants at Kew are planted out in free soil, and have now attained a large size, and form elegantly-spreading bushes.

Stauntonia (Holboellia) latifolia.—If only for the delicious fragrance emitted by the flowers of this plant, it is well worthy of a place in every greenhouse, and the fact that it is a first-rate evergreen with deep green foliage gives it additional value. The flowers are by no means showy, the pollen-bearing ones being green, and those that bear seed a livid purple, borne in clusters in the axils of the leaves at intervals along the slender branches. A fine specimen of it is now full in flower in the temperate house at Kew, and its powerful perfume is diffused throughout the house. Being a native of Northern India, it thrives in the open air if planted against a wall, and in the south-western parts of the country it does not even require such protection.

Royal Horticultural Society.—The Council of this Society having procured a quantity of corms of *Gladioli* are now distributing the same in packets to the Fellows on application at the secretary's office, South Kensington. 3d. in stamps should accompany each application if required to be sent by post.

EDITOR'S TABLE.

THE terrible winters and springs of the past few years have destroyed many things, but left intact the great spring flowering *Magnolia*, which in the valley of the Thames still preserves its good character. Where the soil is warm and position favourable it does well without the protection of a wall in the London district. The flowers, gathered before they are tarnished by the weather, are the first very bold ones of the open-air garden for house decoration.

When the common Sloe is so full of flower that one sees nothing else except here and there a black stem going through the mass, it is one of our most beautiful shrubs, native or foreign, but is perhaps more neglected than any other. Some gathered from a bush near Epping, and described to me as affording a charming effect beside a pool with Willows near, are among the prettiest of cut flowers. A picturesque garden would be all the richer for a small, well-grown group of this early and free-flowering bush, which bears its pearl-like buds and blossoms so abundantly and so early.

From Mons. Guiheneuf, of Nantes, we have another series of handsome double *Anemones*, mostly purplish and scarlet or crimson, one splendid flower being named *Ponceau*. The long voyage prevents one seeing those flowers in all their brilliancy, but we are glad that they receive attention somewhere, as the old double florists' *Anemone* of a few years ago are not now seen in our gardens.

The twin-flowered *Narcissus* (*N. biflorus*) is a pretty kind sent from North Devon, where it is described as forming almost a sheet of blossom in the woods, issuing in many cases from a carpet of *Periwinkle*. It is one of the *Narcissi* which have any claims to be natives of Britain, and is certainly a graceful plant, well suited for culture, especially for the wild garden.

The buds of the double Peaches are pretty. They get such hard knocks in our springs, that they, with a number of early bush flowers, would perhaps give more pleasure if freely cut

and placed on our tables. The same remark applies to a variety of things, many of which could no doubt be forced, or slightly advanced, indoors in the cool-house. But, apart from these ways, it would often be worth while gathering the flowers in the bud, or early stage, and allowing them to expand indoors, as in that way we may save some from the effects of a bad change in the weather. The flowers of the large purple *Saxifrages* are useful just now, both cut in this way and out of doors.

The new crimson *Butterwort* sent by Messrs. Sander, of St. Albans, is a beautiful and most singular one, really rich and lovely in colour. It has been drawn for *THE GARDEN*. From Mons. De Graff, of Leyden, comes one of those curious climbing greenhouse plants (*Bomarea*) which are destined to add a welcome grace to pillars, arches, &c., in cool-houses by-and-by. They are very handsome, and singularly graceful in the way they hang their large trusses of handsome flowers.

The spicy scented flowers of the *Missouri Currant* (*Ribes aureum*), yellow with little red centres, are amongst those which are more effective in the cut state and brought near the eye than when on a bush. The flowers and buds and budding foliage of many trees and shrubs that are not among the showiest as regards bloom would appear much more beautiful and instructive if brought near the eye in our houses. It would be well to systematically introduce those to the house or the school; the showy ones would tell their own tale. In this way children and others might get to know among other things the flowers of our forest trees and others which now pass often unobserved.

From the *Lawson Nursery*, Edinburgh, comes finely grown *Siberian Scilla*, and surely nothing better worth their attention; also the *Taurian* variety of *S. bifolia*, and the curious coppery buds and leaves of *Podophyllum Emodi*, a very quaint-looking plant when budding. The lovely blooms of the *Pasque-flower* are not at all so much seen as those of the other *Anemones*, which makes them all the more precious. *Iris reticulata*, too, is welcome, coming in later than about London. The fine, sandy soil about Edinburgh is well suited to hardy plants, and we are pleased to see the *Lawson Company* paying some attention to them. *McNab's* crimson *Primrose* is a handsome kind, but, if we mistake not, it is surpassed by some raised of recent years.

The splendid flowers of *Dampier's Glory Pea* are a brilliant addition to house flowers, and Messrs. Carter seem to have brought this difficult flower within the bounds of easy culture, so to say. At least we have not seen it so well grown before. The walls of the older and smaller *Glory Pea* (*Clianthus puniceus*) which used to be seen in sea-shore gardens were very handsome; but unfortunately never seen in the London district.

From *Glasnevin*, among other pretty things, come little blue and white-striped *Forget-me-nots*, a fine scarlet variety of the *Japan Quince*, the blue wood *Anemone* (pleasant to see anywhere, but at its loveliest when open in the full sun), the *Virginian Lungwort*, a neat double *Jonquil*, the graceful *Narcissus triandrus*, and a handsome dark form of *Scilla amoena*.

From Mr. Robert Veitch, of Exeter, a strong specimen with many flowers of *Ceanothus rigidus*, from plants three years planted against a wall. They are now 10 ft. high; they bear no trace of the severe winter. These Californian bushes have some value for our gardens, but they require to be used with some judgment, and mainly in warm soils and districts. We knew a house at Camden Hill, Kensington, well covered with one, and which was very beautiful till the late winter injured it.

Notice.—Readers who possess the *GARDEN ANNUAL* will greatly oblige the Editor by sending him the names of any good gardens in their vicinity omitted from it, and by making any needed corrections in it. Convenient printed forms for filling up will be sent by return of post on application to the "Editor," *GARDEN ANNUAL*, 37, Southampton Street, Strand, W.C. Notices of appointments to important gardens would also be gratefully received by us.

NOTES FROM PENDELL COURT.

In Sir George Macleay's interesting garden at Bletchingley, in Surrey, we observed the other day many noteworthy plants in flower. In the stove aquatic house was a splendid example of

Canna Ehemanni, the finest of the several varieties of *C. iridiflora*. The beauty and elegance of this plant as we saw it at Pendell Court are almost indescribable. It is about 6 ft. in height, and has about half a dozen erect stems, furnished with handsome foliage of ample breadth, and of a deep green hue inclining to a bronzy shade, as in *C. limbata*. The flowers are produced in drooping clusters of about ten each terminating the stems, and each is some 6 in. in length, with three broad and recurved petals of a splendid deep carmine, the richness of which is set off to advantage by the fine foliage. It is growing by the margin of the large tank with the roots partially submerged, in which position it seems to thrive admirably, and indicates that such is the correct treatment for it. The delicate foliage of a mass of *Herpestis reflexa*, luxuriating on the earth at the base of the *Canna*, has a very fine effect. By the side of the *Canna* are three grand specimens of an unnamed species of *Crinum* from South Africa, having broad and deeply channelled leaves about 3 ft. long, arranged in a spreading tuft, from the centre of which arises some 2 ft. or 3 ft. in height the stout, glaucous, green flower-stalk, bearing an umbel of about ten flowers, which are with the tube about 6 in. in length, widening out into a bell-like shape with sharply recurved tips. The colour is pure white in the inside, but the petals have a faint though conspicuous rosy-tinted band running through them on their exteriors, and they have a delicious perfume. Like the *Canna*, it is treated as a sub-aquatic, and no doubt the majority of the *Crinums* would be benefited by being subjected to a moist treatment such as this. Other noteworthy plants in this house are the varieties of *Thunbergia alata*, which hang in graceful profusion on the dead branches of a Pear tree placed against the back wall. In this position they have a fine effect, as the variously coloured blossoms intermingle in a confused, though charming manner. One has flowers entirely of a rich, deep orange hue; another is of the same tint, but with a conspicuous black centre; then there is a pure white form, and another white with a black centre. Seldom have we seen this fine old climbing plant so effective as here, and it is well worth growing in any position. The rare *Pontederia* (*Eichornea*) *azurea* is flowering, as it nearly always is; its bright purple flowers take the place of the tropical *Nymphæas*, which, later on, will flower in great variety. Trained to the roof is the pretty *Manettia bicolor*, a climber, which, though old-fashioned, has but few equals as a useful stove plant.

Orchids.—Among these we noted a remarkably fine form of *Ada aurantiaca*, quite distinct enough indeed from the type to merit a varietal name. Instead of arching in the ordinary form, the flower-spikes are quite erect and the segments of the blossoms are longer, widely expanded, and distinctly recurved, which renders them more showy, but the colour is somewhat the same. One of the most elegant of the numerous *Cœlogynes* is *C. flaccida*, which bears its drooping racemes of blossoms all around the base of the plant in a most charming manner. The flowers are white, with the lips streaked with various shades of yellow. It is one of the best Orchids to grow for ordinary purposes, as it is easily managed, and lasts a long time in perfection. Mr. Green grows the rosy-blossomed *Mesospidium* finely in suspended baskets, and so it has a pretty appearance, as the drooping racemes hang so gracefully over the sides of the basket. There is a fine plant of *Phaius Wallichii*, one of the noblest of the species, having large tinted flowers with rosy lips, borne on tall, stout stems over-topping the broad, handsome foliage. Among other Orchids of note are the pretty *Dendrobium pulchellum*, one of the best for hanging baskets or blocks, *D. suavissimum*, *Odontoglossum Halli*, and several *Cattleyas* and *Dendrobiums*. Adjoining the Orchid houses is a long narrow house, in which a cool temperature is always maintained. It is in this house more particularly that Mr. Green obtains such wonderful results in the culture of those plants which are reputedly difficult to manage. This house is very gay just now, not gay in the sense that a stage full of *Cinerarias* or *Pelargoniums* is, but with bright blossoms of plants in infinite variety. All the plants of large size are planted out in free soil; some are trained to the back wall, others to upright pillars, while others of bushy habit are allowed their own free will to grow without restraint or training. Some of the more noteworthy of the plants in flower in this house include

Cantua dependens, a lovely Chilean shrub, which is literally a mass of bright magenta-coloured blossoms hanging in loose clusters from the tips of every branch. No doubt the secret of success in cultivating this shrub lies in planting it out in such a house as this, and those who possess it, and have been unsuccessful with it, would probably be rewarded by taking a hint from Mr. Green's experience. Cultivated as it may be, any trouble expended in that way is amply repaid by the gorgeous blossoms, which, moreover, are not of fleeting beauty, but last in perfection for several weeks. Another most effective and rare plant is

Echium Decaisneanum, a Boraginaceous plant of somewhat shrubby character, assuming a candelabra-like habit of growth. The leaves are large, pale green, covered with a dense soft downy substance, and aggregated about the extremities of the branches. The flowers are of an intensely deep blue, arranged densely on a spike some 6 in. long which terminates each branch. The projecting stamens of the flowers give the spike a bottle-brush-like appearance, which is very singular. The plant is not hardy, but succeeds in the open during summer, and is much benefited by being planted out and lifted in the autumn. It is a fine plant for flowering in a greenhouse in spring, and well worth growing in any garden. The nearly allied species, *E. fastuosum*, was figured in *THE GARDEN*, Vol. X., p. 546. *E. candicans* is also grown in this collection.

Acacia Riceana is a perfect mass of bloom, the long thong-like drooping branches being thickly furnished with its sulphur hued blossoms. It is an excellent shrub for planting against a pillar in a greenhouse, for in such a position its extremely graceful habit of growth is seen to advantage. It may be grown finely in pots, but it is far less trouble to plant it out in a well drained bed of good open soil. It is excellent for cutting purposes, and for several weeks an abundant supply of flowers may be cut without disfiguring or injuring the plant.

Australian Plants.—These thrive admirably in this house, and there are several finely in flower. *Hardenbergia bimaculata* is an exquisitely pretty twiner with long racemes of tiny purple Pea-like blossoms, having two conspicuous light blotches on the upper petal of each flower. When seen in a mass as here it is very effective, and is one of the best greenhouse climbers we could recommend for small gardens, as it furnished a supply of cut flowers for a long time. The *Kennedya*s, too, are beautiful. *K. rubicunda* is a mass of deep red flowers of large size, and makes a capital object either for a pillar, rafter, or wall trellis. Some of the *Grevilleas* are showy, notably *G. fasciculata*, with scarlet flowers and narrow Rosemary-like foliage, and *G. ericæfolia*, likewise with red flowers and narrow leaves. A neat and pretty shrub is *Hibbertia Rheedii*, a compact, dense-growing species with small leaves, and bearing a profusion of small, but bright yellow blossoms.

Bromeliads.—The house devoted to these is very attractive, as the plants, instead of being in pots, are planted out in Moss and other material placed against the walls, so that they grow in their natural way, and certainly thrive remarkably well under this mode of treatment. A warm, moist atmosphere is maintained, which is just what most of the tropical Bromeliads require. Of the plants in flower there was the brilliant *Billbergia Wiotiana*, with scarlet bracts enclosing a dense cluster of yellow flowers with purple tips. *Tillandsia zebrina* with its handsomely barred foliage and long sword-like spike of scarlet bracts was also very attractive, as were also several species of *Nidularium* and *Echmea*.

Hardy Flowers.—On the southern side of the kitchen-garden wall is a grand old mixed border, such a border as should exist in every large garden, as the broad walk flanking it affords a delightful promenade in winter and spring, effectually screened from piercing north and east winds. Though the border is now flowerless compared with the brilliant display which it presents in the height of the season, there are still hosts of plants in it in flower, and bright unfolding foliage such as that of *Pæonies* and similar plants. It contains myriads of *Tulips*, *Dog's-tooth Violets*, *Anemones*, *Squills*, *Hepaticas*, *Primroses*, *Lungworts*, *Snowflakes*, *Crown Imperials*, *Daffodils*, *Barrenworts*, *Grape Hyacinths*, *Fritillaries*, *Hellebores*, *Arabis*, *Orobuses*, *Aubrietias*, *Violets*, and many others less common, such as *Uvularia grandiflora*, *Pulmonaria virginica*, *Primula rosea* (fine plants), *Auriculas*, *Anemone apennina*, and *Stylophorum japonicum*, a fine yellow flower herb.

W. G.

THE FRUIT GARDEN.

ORCHARD BLOSSOMS.

THE time of orchards is at hand, and we counsel all those who have the opportunity to enjoy them when they come. The glorious beauty of an orchard in flowering time one would wish to be seen in every village and on every hillside, but it is surprising how seldom it is seen when one considers the love and the opportunities for gardening which exist in our country. In certain districts in Kent and other counties one sees little but fruit trees and orchards, but throughout the country generally they are far too rare. Every country gentleman should show the example of a well kept and well cultivated orchard in his place; it would lead to emulation in a whole district. It is not for its profit only that one desires this, though that is great, but for its

has hitherto resulted from man's labours? It ought to be well done or not done at all; the soil, shelter, selection of sorts, proper trees to begin with, truth to name, not too many kinds, and proper cultivation of the ground for some years—these are among the points that should be attended to if a good result is looked for. No amount of telling will probably ever induce people to plant sufficiently few kinds. Everywhere we see the result of too many kinds. Better three sorts than thirty; but each sort should be looked at from every point of view—hardiness, fertility, fitness for the climate, the stock it grows best upon, the time the fruit ripens, and the length of time it keeps.

APPLE TREE CANKER.

W. B. BLANDFORD asks (p. 386) for advice about his Apple trees, which seem to be badly cankered. My experience may be of use to him. The gardens here are on the Bagshot sand formation; the kitchen garden is chiefly on a sharp slope facing the south-east, and is full of natural springs. I have found after rains the surface soil in many places very wet, although the ground is well drained, and whenever this is the case the trees invariably canker and die out gradually. In the low, flat part of the garden, at the base of the slope, where, from the retentive character of the subsoil, the water does not get away to the drains readily, there too they go off in the same way. My endeavour has been to get the water away quickly from these parts by auxiliary drains. This and shallow planting, so as to keep the roots up as much as possible, seem to be the best remedy; but there are some sorts, do what I will, which seem determined to canker; for instance, I have planted the Ribston Pippin in all parts of the garden, on the hill where it is high and dry, with a strong, yellow, sandy loam as subsoil, on slopes where the soil is moister, and a strong, greenish, clayey subsoil and running sand in places, and on the stronger soil in the bottom, but have never been able to get a fruit fit to eat. I do not attribute this to the soil only. I will give my reasons. I have planted perhaps two dozen Winter Nelis Pears in different parts of the garden at different times, and they invariably cankered and died, but one of the trees I planted on the west side of the house in which I live; that was about thirteen years ago, and that tree has shown no signs of canker, and has borne a fair amount of fruit. No special preparation as to soil was made for this tree; it was planted like the others in the natural soil of the garden. It therefore seems to me that climate has much to do with the matter, as a tree against a wall with overhanging eaves cannot be said to be under the same climatal influences as one exposed to wind, wet, and cold in the open.

There are some sorts of Apples and Pears of stronger constitution than others which do not canker under the same influences. As an instance of this, I have had several trees of Keswick Codlin and Lord Suffield side by side. The Keswick grows well and bears good crops, showing scarcely any signs of canker, but Lord Suffield gets cankered and gradually dies away. Wellington is one of the best kitchen Apples here; it resists canker, bears freely, and keeps till April. The old Cat's-head also does well, and is a free cropper and first-rate keeper. Manks Codlin is a very free cropper, healthy, and of moderate growth—just the sort for small gardens, and, when in bloom, garlanded with beauty. It keeps



extreme beauty. Every kind of fruit tree is beautiful in an orchard when in bloom; some particularly so. Cherries, when they get old, are marvellous for beauty. Walking over some hills, near East Grinstead, last spring, we came upon an old farmhouse surrounded by old Cherry trees; they were very healthy and very large, and leant in various directions through age, but were full of blossom. From three separate points of view along the road this house and its surroundings formed a picture such as one seldom sees at the academy; yet this could scarcely be called an orchard, but was simply a group of Cherry trees around a modest house. A picture no less lovely is the old Cherry orchard with Grass beneath, and sheep and lambs on it, the trees above a mass of snowy bloom, and the petals floating down on the wind and whitening the Grass. Then we have the Pear, early and beautiful—he would be a wise man who would plant a few of the kinds peculiar in the beauty and size of their blossoms. So one might go through the list; most of our fruit trees have beautiful blossoms. Last, and best of all, however, is the Apple tree, the most important fruit of Europe or America, and the most beautiful flowering tree. What is the good of recommending botanical curiosities if people want to be told to plant an Apple orchard, the fairest sight, perhaps, that

with me up to Christmas, and is not bad as a dessert Apple. Lemon Pippin and Tower of Glamis are good bearers and healthy in constitution. One of the best kitchen Apples I know is Northern Greening, a kind which is grown a good deal in the midland counties, and which can always be depended upon for a crop. It keeps till May in a good fruit store, and at no time does it require above half the sugar that the Wellington does.

Of dessert Apples, King of the Pippins should be grown largely everywhere. It is a sure cropper, moderately strong in growth, and the appearance of the fruit is all that can be desired, either for sale or for the table. It is crisp and juicy, and keeps well. We are never without a crop of this sort, even in the worst seasons. Cox's Orange Pippin, though not so free as the former, does fairly well here, and is "an Apple fit to set before a king." It has the Ribston flavour, but the fruit is not quite so large. Court Pendu Plat does well here. It is very hardy, resists canker, and should be more grown than it is on account of its compact habit, very distinct appearance and flavour, and its long-keeping properties. Cornish Gilliflower does very well here. It does not canker, but is only a very moderate cropper. In flavour it is excellent, and the appearance of the fruit very distinct from that of other dessert sorts. There is an early dessert Apple which should be in every garden, and that is the Irish Peach. It ripens in the end of August and beginning of September, and should be eaten from the tree. Its flavour is delicious and very refreshing. The tree is a moderate grower and free bearer.

It is a bad plan to buy Apple or Pear trees that have been grown rapidly in low-lying ground, where the water cannot get away readily; they are almost sure to be affected with canker in an incipient stage if not perceptible, owing, as I think, to the un-ripened state of the wood and the bad root action caused by too much moisture in the soil. The best soils from which to buy Apple trees are good upland hazelly loams, where the roots come away like mops consisting of plenty of small roots, instead of a few long straggling ones with but few fibres. I would say to "W. B.," take up your trees as soon as the leaves are turning yellow, plant again at once in a fresh position, keeping the roots well up, water them in well, mulch with half-rotten manure, and stake firmly to prevent rocking. If, however, the trees are badly cankered, it will be better to throw them away and plant good healthy ones, as they will never be satisfactory, even if they do to some extent recover. If I were planting an orchard I would plant double the number of trees I wanted to stand permanently, and in considerable variety, as by the time it was necessary to thin them it would be seen which sorts succeeded best in the soil and situation in which they were to grow.

R. LLOYD.

Brookwood, Woking.

FRUIT CULTURE FOR PROFIT.

Plums in Pots.—Where an orchard house or cool house of any kind can be spared to shelter the trees in spring while in bloom they usually bear a fine crop. The best time to select and pot the trees is autumn, as soon as the leaves fall, and they should be potted firmly, using good loam slightly enriched with a few crushed bones or a little old manure. The bones are very beneficial for stone fruits, because they are so lasting and do not clog up the soil, and the lime they are ultimately resolved into is especially suitable for fruit trees of this class. None but healthy, well-rooted trees should be chosen; the roots should be shortened a little where long, carefully trimming with a sharp knife all that are wounded in lifting. In most cases 10-in. pots will be large enough to begin with, and when the potting is finished they should have a good watering with a rosed pot to settle the soil, plunging them at the same time up to the rim in coal ashes, placing 2 in. of ashes under the bottom of the pots to keep out worms. 4 in. or 5 in. of litter, leaves, or Cocoa fibre should be placed over the top, covering not only the pots, but the spaces between, to keep out frost, and to preserve an even state of moisture round the roots. Whatever pruning is necessary to improve the shape of the trees should be done when they are placed under cover, just when the buds are beginning to move early in March. Trees so treated will begin to make roots almost immediately after potting, and by the time they are taken to the house they will be fairly in possession of the new soil, and probably some of them will bear fruit the same summer. The pots may be placed almost

close to each other until the young fruit are set and the trees are breaking into growth, and by that time a part may be moved to a sheltered corner in the open air, plunging the pots to maintain a regular state of temperature and moisture. The young growths should be pinched when they have made about six leaves, just taking out the points of the shoots. All the shoots need not be pinched at the same time, but as each shoot requires it, diffusing whatever check is given instead of concentrating it. All the trees may be plunged in the open air if desired, but early Plums are so desirable for the dessert, space, if possible, should be found under cover for a few trees to ripen their crop; afterwards the trees may be exposed to ripen their wood. Abundance of ventilation should be given at all times when the weather is calm and mild, but cold draughts should be guarded against. Plum blossoms are fragile and tender. A dry, buoyant atmosphere should, as far as possible, be maintained when the trees are in blossom; but after the fruit is set the syringe or engine should be used freely to keep down insects and maintain a healthy growing atmosphere. Open the ventilators a little in the morning, gradually increasing the openings for the admission of fresh air as the day advances, and on mild, warm days giving all the fresh air possible, closing the ventilators at four o'clock to take advantage of the sun's warmth, and then giving a little air, more or less according to the state of the weather, in the evening, and leaving it on all night; but as no glass structures are air-tight, very small openings will suffice in a general way during the night to prevent stagnation. At no time must the trees be permitted to suffer from want of water, and as soon as the fruit is set and swelling nicely, weak liquid manure may be given three times a week; top dressings of short manure will in some cases be beneficial and desirable. If necessary, the clusters of fruit should be thinned to ensure size and flavour. Overcropping invariably leads to debility and insect attacks. If the syringe does not suffice to keep down insects, which, if properly used, in most cases it will, Tobacco fumigation must be resorted to on a still, calm evening—wet evenings are best—shutting the house up closely, damping the paths and floors slightly, but keeping the foliage and young fruit quite dry. It is better to fumigate moderately two evenings in succession than to give an overdose, as young, soft growth may receive injury. Use the syringe freely the next morning after fumigating. Whenever the trees require larger pots, shift them in the autumn, but after they are transplanted into 14-in. or 15-in. pots they may be continued in the same pots for years in a healthy, fertile condition by the aid of rich top-dressings and liquid manure. The pots should be carefully drained as the trees require a good deal of water, and any surplus beyond what the soil can hold in suspension should have a ready means of escape. A collection of Plums may be a source of both pleasure and profit for many years without renewal; indeed, I have always found Plums submit more readily to pot culture than other fruit, with the exception, perhaps, of Figs and Grapes.

The Pruning is best done when the trees are taken into the house, and at that time a general dressing up should take place, removing (in trees not requiring repotting) all the surface soil that can be got out of the pots, without inflicting unnecessary injury upon the roots, and filling up the space with rich, turfy loam and manure, ramming it firmly down. The compost should be in a nice, dry, mellow condition when used, neither wet nor yet dust-dry. In what is termed the winter pruning, the spurs that have been created by summer pinching should be shortened nearly to the point where fruit-buds are being produced, leaving a wood-bud to lead, but there is not so much necessity to observe this rule with Plums as with some kinds of Peaches, as a Plum branch rarely fails to produce a leader. The manipulation of the growth of Plums in pots is very simple, and may be summed up thus: Disbud where the young shoots are too numerous very early, when they can easily be rubbed off with the finger and thumb. Pinch the points out of the young growths when they have made six leaves, going over the tree, say, twice a week for that purpose. A few minutes will suffice each time. Pinch all lateral growths to one leaf, shorten back the spurs so formed when the trees are brought into the house, keep an eye to the shape of the tree, and at the same time fill it full of bearing wood, so that the crop may be distributed equally over its surface. With Plums this is not difficult, as they will break out of the old wood anywhere. In pruning make the cuts short and smooth, and to accomplish this well the knife, or whatever instrument is used, must be sharp.

I am in favour of the knife for such work, for although the secateur or French pruning shears are excellent instruments for merely cutting through a branch, there are often excrescences on the bark—remains, possibly, of the summer pruning—that should be smoothly trimmed, and which can only be done properly with a knife. All dead spurs or snags that require removal should be cut close to the stem in order to facilitate the healing of the wound, and its ultimate covering over with new bark.

Plums on Walls.—It is well, of course, to set apart a wall for Plums exclusively, and this wall may have an east or west aspect, but in addition wherever there may be a vacancy of only a few feet on a wall, no matter what the aspect may be, and you are in doubt as to what to plant, plant a Plum. They soon come into bearing, and by lifting occasionally a quantity of good fruit may be gathered from a small space. Plant the best dessert kinds on the best aspects, and fill up the north walls with kitchen fruit. Plums make an excellent preserve, and they are always in demand for tarts. And if the young fruits set too thickly in spring, the thinnings may be sent into the kitchen for the latter purpose. From the time the early prolific comes in in July to the time of the Golden Drop and *Impératrice* in October or later is a good long season, and a suitable selection of sorts will give a continual succession. The Plum is a much hardier fruit than the Apricot, but so far as regards the culture of the choicer kinds on walls both succeed well with the same treatment, and therefore much that I have written on the Apricot may be appropriately referred to when the Plum is under consideration. On a good dry bottom many people dislike going to much expense in preparing borders for Plums. But where the expense of walls has been incurred it seems much like the proverbial case of spoiling the ship for the sake of saving the halfpennyworth of tar, to begrudge the formation of a good, sound, suitable border. It may, like the Apricot, be made to produce its crop on the young wood, or it may be encouraged by stopping the young shoots in summer to bear on spurs. The common plan is to lay in as much young wood as there is space for during the summer dressing, and also encourage as many spurs along the main branches as can be left without crowding, and no doubt each cultivator will in the future, as in the past, continue to use his own judgment, and be guided by his own experience, influenced in some measure perhaps by surrounding circumstances. Any man taking charge of a place where the trees have borne their fruit mainly on spurs, whatever his own predilections may be, would commit a mistake if he cut off all the spurs for the sake of laying in young wood, as the thing, if done at all, should be done tentatively; anyway, it is always a safe practice in the case of stone fruits to lay in a healthy young shoot wherever it can be done without overcrowding, and then in the course of time, if it be so desired, the old spurs may be gradually removed, and thus new life will be infused into the tree. In the matter of training the fan is a very popular shape, and I may say also that it is an excellent one. It is easily filled up if a branch dies, and it is one that commends itself to cultivators generally for that reason, and because its outline is simple, and, as a rule, simplicity in any matter is a decided advantage, and often leads to its adoption. But the fan shape is not without its drawbacks. It is a long time filling up a wall, and it cannot easily be made applicable for the filling of a small space. A fan-shaped tree against a wall 12 ft. high must have a considerable horizontal space to give it proper proportions, and as I have been recommending Plums for the filling up of smaller spaces—to, in fact, fill up vacancies anywhere—I should recommend the adoption of the *Palmette Verrier*, or some modifications of it, for that purpose. The Plum is easily trained in any direction when young, and if we have a space 5 ft. or 6 ft. wide, and 10 ft. or 12 ft. high, and wish to plant a Plum or Pear on it, that is the form of tree I should recommend, and train the main branches far enough apart—say 1 ft.—to permit of young wood being laid in between. I know some people may complain of the cost of the young trees, but there is no occasion to buy trees more than one year trained, or maidens if they could be obtained strong; in fact, older trees would not be suitable.

Pruning Plums on Walls.—It is only necessary to say a very few words upon this subject, and I will begin with the trees when they are bursting into growth in spring. Few people take the trouble to disbud Plums, but when good young wood is required for laying in disbudbing is necessary; and in all cases it is well to thin out the cluster of young shoots when they are

small, and their removal will not be missed. Young trees, too, in vigorous health often throw out gross shoots, which if permitted to remain will rob the weaker shoots, and yet themselves will be useless for fruit bearing. All such shoots should be removed when they are young as soon as their plethoric tendency can be distinguished. As the spring advances and the fruit is swelling the young wood, if all were permitted to grow beyond a certain stage, will simply carry off the sap that should go to the support of the fruit, and will also, by keeping out the sunlight and air, prevent the fruit swelling properly, and it should be borne in mind that it is not the young, soft leaves that are being formed that gives support to the fruit or brings fertility to the buds next year; it is the older, fully-developed leaves that are carrying on the chief work of the tree. No doubt those young leaves, when they gather substance, will help to perform the work of elaboration, but until that time arrives they are simply wasting the resources of the tree. And after they have arrived at a useful stage they can only help to perform work that would have been better done by the first-formed leaves without their assistance. I have written this much in explanation of the importance of summer pruning. Early in June the trees should be gone over, and the stopping of all young shoots not required for laying in should be persevered with through the summer, not delaying the work for the purpose of having a general trimming up, but going over the trees as they require it. Laterals that start away from the spurs cut back should be pinched to one leaf. Not much winter pruning will be required beyond shortening back the spurs which are the result of the summer pruning. Some may, if they are more numerous than desired, be cut out, but, as a rule, it will be found advisable to cut out old spurs and leave the young ones to take their place, as in this way the blossoms will be kept near the shelter of the wall.

E. HOBDAY.

EXTENSION-TRAINED VINES.

I HAVE from time to time furnished you with an account of a *Barbarossa* Vine here which has been subjected to the extension experiment on a rather extensive scale, and I now send you a few more particulars concerning it. Last year, as Mr. Wildsmith informed your readers, I left about 30 ft. of young wood on the Vine in two horizontally-trained limbs, that together produced some fourteen good-sized bunches, that finished beautifully, and were preserved till late in the season upon the Vine. Last autumn the Vine had reached the end of the Vinery in each direction, where it was stopped, and not having been cut back it is now 50 ft. long on the horizontal line, and including that portion that grows up to where the canes diverge about 58 ft.—all the growth of two seasons. This season the whole of this length has broken in a strong and regular manner, and shows well for fruit. The *Barbarossa*, when trained vertically in the usual way, is one of the worst of breakers on the young wood, but, according to my invariable experience, horizontal training entirely overcomes the difficulty, and as this plan is just as easily adopted as the other, the fear of blank rods need not any longer cause growers any anxiety. I have not any doubt that had I planted five Vines in our 50-ft. Vinery, where the Vine in question is growing, instead of one, and trained two rods from each, I could easily have filled the nearly 1000 sq. ft. of space with bearing wood in two years, and fruited the whole of that area the third year. I am, of course, aware that had I cut the Vine back, as is usually recommended, I would have had an apparently stronger young shoot, but it would have been only apparent. As it is, I have a two-year-old Vine close upon 60 ft. long bearing as much fruit as I think desirable to leave upon it, and sixty-one young shoots already about 1 ft. long each, representing an active growth and corresponding vitality far in excess of what a shoot from a cut-back rod would have produced. I feel perfectly sure that cutting back strong young Vines to the bottom wire, or thereabout, with the idea of getting increased vigour is a complete delusion, and more a rule of thumb practice than anything else. You cannot put increased vigour into any tree by cutting the top of it—at least I cannot comprehend how that can be done. The new growth will make a rebound, but that is all, and it gets spent even before it overtakes the previous year's growth. I have adopted the plan myself at times, but I learned it from example more than from reason and argument, and do not intend to follow it. Vine growers must remember that although they may leave a long Vine rod in any one year, they are not obliged to crop it severely, and its vigour cannot be impaired by a fresh additional growth of shoots and leaves, else our theories on the subject are all wrong. I think those who look at it in this light will

be unable to come to any other conclusion than that at which I have come to.
J. SIMPSON.
Wortley.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Fruit Prospects.—There is no department of gardening wherein those engaged are so liable to see their reasonable anticipations disappointed as with hardy fruit, for it often happens that when all looks fair in the condition of the trees, the bloom gets cut by frost, the fruit falls off in quantity after setting—or, even when, as last year, the Apple bloom, though so much retarded by the weather as not to open until the time for frost had passed, yet still the crop in most places was all but a failure. Nevertheless, so far as appearances go, there is this spring a combination of circumstances that give more than usual promise of plentiful crops. In most parts of England, from north to south, that within the last month I have had an opportunity of seeing, the first essential is present—plenty of bloom buds, which collectively in the different kinds—Peaches, Apricots, Plums, Apples, Pears, Cherries, and bush fruits—have been kept back until the most favourable time for their opening arrived. Old-established trees that have passed the period for too great a disposition to make wood, but rather, on the other hand, are wanting in vigour, have had two years of all but rest from being burthened with a crop, and in most localities are literally smothered with buds. The effect of the more than ordinary rainfall of the past two summers is apparent in the improved vigour of Peach trees, where they have not been injured by frost—the greater amount of moisture in such parts of the kingdom as are usually subject to a slight rainfall, having benefited them. A most unusual occurrence this spring in many gardens is, that the Peaches are in bloom as soon, or even before, the Apricots. Bush fruits in most places are unusually thickly set with bloom. Taking into account the rest which fruit trees of most kinds have had during the last two years, and the promising appearance they now present, with favourable weather the least sanguine may look forward to a more than ordinarily abundant crop.—T. BAINES.

Keen's Seedling Strawberry.—Amongst old kinds of this popular fruit few have retained their original character for general excellence like Keen's Seedling. We have lately been gathering it in quantity for dessert; and, although one often hears that forced Strawberries are devoid of flavour, such assertions are groundless, for I do not remember ever having gathered finer, higher coloured, or better flavoured Strawberries than we have lately gathered under glass. In fact, after the season is so far advanced as to allow an abundance of fresh air to be given, I look upon the Strawberry as being one of the fruits that is really improved by artificial treatment, for it is by no means a common occurrence to get the outside conditions necessary to insure high flavour even in July. The system of culture which we adopt is layering in 3-in. pots as soon as we can get runners, potting in 6-in. pots before the end of July, keeping them abundantly supplied with moisture during all stages of growth (except when freshly potted), and starting them in a gently progressive temperature. We have this year set each pot on a square piece of turf, which can be removed with the pot as they are rooting through. When introduced to heat the blooms were fertilised with a camel's-hair brush to insure perfect setting, and I find that the nearer they are kept to the glass the better. The shelves on which we ripen them only just allow room for the foliage, and when raised from the lower shelves it is surprising the improvement that is visible in a few days over those further from the glass, but treated the same in every other respect.—J. G., *Linton Park, Maidstone.*

Dressing Vines for Mealy Bug.—In THE GARDEN (p. 399) "Peregrine" throws discredit on the receipt given in the new edition of "Carter's Practical Gardener" for dressing Vines affected with mealy bug. Most people who know the standing of the experienced and successful Grape-grower who wrote the article in question will look upon his name as a sufficient guarantee for what he advises, and also feel satisfied that he would not recommend the use of anything he had not proved to be both effective and harmless. I have no doubt he is prepared to stand by what he has written; but happening to know the Vines dressed with the tar mixture, which dressing was repeated two or three times, and still further having seen the result, I can state distinctly that the prescription is as harmless to the Vines as it is effectual in destroying the insects. Dressing Vines with the mixture of at least eleven or twelve parts water, lime, and clay (according to the moist or dry condition of the clay) to one of the tar is a very different thing from "smearing them with tar," as "Peregrine" chooses to speak of it. I cannot help thinking that when such advice as this is given, it would

serve a better purpose if "Peregrine," in place of disparaging it, would bring something more convincing to support his doubts. Men like the writer of the prescription in question, who have made for themselves a world-wide reputation, are not likely to wreck it by giving advice that would bring discredit on them.—O. P.

Fertilising Muscat Grapes.—There is nothing more disappointing in fruit culture than to have irregular crops where full crops might be had. And more particularly is this the case with Vines that form such an important feature in almost all gardens nowadays; and especially is this the case with the various kinds of Muscats and some of the late-keeping Grapes, such as the Alicantes, that are frequently marred in their otherwise noble appearance by being burthened with a quantity of small stoneless berries, the result of imperfect fertilisation. We have lately been trying the experiment of saving the superabundant pollen of Hamburgs, Foster's Seedling, and other free-setting kinds, shaking it into a large tin box, and keeping it quite dry until the Muscats are in flower. Then we intend to apply it to them with a camel's-hair brush, and I feel the greatest confidence in recommending it to anyone who has any difficulty in getting a good set, for we have had to use the scissors very severely in thinning this year, almost every bloom having set—in fact, one cannot get an even crop without there is a superabundance at thinning time from which to select the most promising. It is not a very troublesome affair, but is one of those minor details of culture on the observance of which at the right time greatly depends one's meed of success.—J. G.

Vines Out-of-doors.—Mr. Roberts (p. 385), in alluding to unsuccessful efforts to grow and fruit the Grape Vine in the open air in Cornwall, is somehow under a misapprehension as to what I said (p. 356), as I did not there in any way allude to Vines out-of-doors. In recommending varieties for an unheated orchard house, I mentioned the Esperione as being nearly equal to the Black Hamburg, and I said, "even the latter, in ordinarily favourable seasons, is found to ripen its fruit under glass without any assistance from fire-heat in most of the southern and south-eastern counties of England." But I should certainly not think of recommending the Black Hamburg for out-door culture. Although such fruit may in exceptionally fine seasons, and in exceedingly favourable situations, occasionally ripen in the open air, such results can, however, only be regarded as exceptions to the general rule. But the protection and influence of a glass covering, even without the aid of fire heat, will be found to be of considerable value.—P. GRIEVE.

Staked v. Unstaked Trees.—We have lately heard a good deal about the beneficial effects of wind waving, but it would be hardly safe to expect results in a cold country similar to those we hear of in the Tropics; at the same time, a medium course is probably the best, for it is generally conceded that if a tree will stand without staking it generally makes better growth than when tightly fastened up. Be that as it may, when tall standard fruit or other trees are planted, it is positively necessary to stake them securely until they get well rooted, but the sooner stakes can be dispensed with the better. In the case of choice trees I find the best way to secure them is by means of three stout cords, or wires, fastened to stumps set in a triangular form, similar to the way in which tents are fastened, as this allows a certain amount of play for the head, and removes all danger of the tree chaffing its bark, whereby so many trees are predisposed to canker and premature decay. In exposed districts there is no doubt that dwarf or half-standard trees are best, unless it is intended to have pasture for grazing under them, for they require but little staking, and soon shelter one another, and in the case of spreading, low bush trees, the underneath branches may escape spring frost, by reason of the shelter afforded by the upper branches, while those on exposed standards may all be cut off. Some kinds are especially adapted for low bush trees, such as the new and old Hawthornden, Stone's Apple, and that equally sure bearer, Summer Golden Pippin. But one of the best aids to minimise staking is careful planting on deeply cultivated ground, and spreading the roots out evenly, with the head slightly inclined to the windward or exposed quarter.—J. GROOM, *Linton.*

Brown Spots on Grapes.—These are produced in various ways. The fruit of Vines having their roots in old borders with a poor root action is more liable to spot than Vines in vigorous health. "A. D." (p. 272) will find allowing plenty of foliage to shelter the fruit from the direct rays of the sun in the morning before the fruit is thoroughly dry to be a good preventive; ventilate at the top of the house as early as the outside atmosphere will allow. Sulphur will do no harm after the fruit gets to stoning size, provided the heating medium is not over warm, but every particle of the sulphur must be cleansed off the pipes or flues at the end of the season; otherwise, the fruit will be affected in its young state. Berries affected with spot are hard in the skin and deficient in flavour.—JAMES SMITH, *Waterdale.*

THE FLOWER GARDEN.

CALLIRHOE PEDATA.

THIS is a member of a small, but extremely handsome, genus of North American plants too little known by far to cultivators in this country, though the introduction of some of the species dates back a long time. Some half-dozen kinds are known in our gardens, and *C. pedata* is one of the prettiest. The subjoined woodcut shows well its habit of growth. It grows 1 ft. or so in height, and its flowers are about $1\frac{1}{2}$ in. across, and of a bright purple-crimson. It is a herbaceous perennial, and succeeds perfectly in the open border in a rich light soil. *C. involucrata* is another fine kind indigenous to California, and also to the regions lying between the Rocky Mountains and the Missouri. Like the preceding, it has a perennial root, from which arise several stems of a trailing habit when unsupported, bearing lobed foliage, variously incised, and very handsome crimson flowers, fully 2 in. in diameter, on long foot-stalks, from the upper axils. When sown early the plants bloom easily the first season, and continue in flower until a late period of the autumn. The roots will survive our average winters in dry soils, and increase in strength each season, though were it otherwise, the plant might be cultivated as a half-hardy annual. It is important to transplant the seedlings into the open ground as early as the season permits, *e.g.*, by the middle of May, as, having a tap-root they do not appear to succeed well in pots. The shoots may either be allowed to trail or may be supported by unobtrusive sticks, according as circumstances may suggest. It succeeds better in dry soils than in those of a wet or highly enriched character, in which it grows too luxuriantly, producing foliage at the expense of flowers. We believe this plant to be identical with that formerly cultivated under the name of *Nuttallia grandiflora*, and usually considered a greenhouse plant; our experience of three years enables us, however, to affirm that it succeeds better in the open ground during the summer months, though in the northern counties it may be advisable to pot it up at the approach of frost, employing a pot at least 6 in. in diameter. If this be carefully done the plant will continue to bloom under glass for some weeks.

For the introduction of this fine plant to our gardens we are indebted to Mr. Thompson, of Ipswich, to whom we are likewise indebted for *C. macrorrhiza alba*, a pure white form of a species with purplish-carmine flowers. It is of a very neat habit of growth, producing from a tap-root, which ultimately attains some size, an erect stem from $1\frac{1}{2}$ ft. to $2\frac{1}{2}$ ft. high, which bears a corymbose



Callirhoe pedata.

raceme of pure white flowers on long, naked foot-stalks, articulated near the summit, the corolla being rather more than 1 in. across, and the calyx without the involucre leaflets, which occur in some other species of this genus. The foliage, mostly radical, is cordate in form, with crenate margins and long-stalked. The plant appears to occur in several shades of colour, varying from rosy-purple to pale rose and white. Sown early, it will bloom the first year. It is a native of the South-western States of North America.

The Finger-leaved Callirhoe (*C. digitata*) is a glaucous herb, growing 2 ft. or 3 ft. high, and producing reddish-purple flowers in summer; it is not so showy as the others, but it succeeds under similar conditions of culture. W. G.

FRUITING DUCKWEED.

(NERTERA DEPRESSA.)

THIS is an extremely pretty plant when well grown and thickly studded with its tiny reddish-orange berries. The minute round leaves are very suggestive of the Duckweed which infests the surface of our stagnant pools, a resemblance which has given rise



Nertera depressa.

to the popular name of Fruiting Duckweed, though botanically it has no relation to the genus *Lemna*. It forms densely matted tufts, and when thriving soon spreads into a large mass. It is grown most successfully under glass, but, as it is a native of New Zealand and Tasmania, it flourishes in the open air and is an excellent plant for snug corners in the rock garden, but it requires a little protection during the most severe cold. It may be propagated readily in the following manner: Take old plants and divide them into small portions and then place them in small pots in a gentle heat for a time until started into growth, then remove them into a cooler atmosphere. If a stock is required, the points of the young shoots should be taken off and inserted in pans filled with one part leaf-mould and the other of sand. When watered, a square of glass or bell-glass should be placed over the pan. Thus treated, the cuttings will take root in a few days, when they should be potted off into $2\frac{1}{2}$ -in. pots and again placed in a gentle heat until established, when they should be removed to a shelf in a greenhouse until the fruit is set. W. G.

CULTURE OF THE CARNATION AND PICOTEE.

Seed.—From about the end of March to the end of April sow the seeds about 1 in. apart in carefully drained pans or pots filled to within 1 in. of the brim with a compost of one part loam, one part leaf-mould, and one part silver sand, putting the roughest part of the compost at the bottom of the pan, and the finest at the top. It is a good plan to sprinkle the surface of the soil with wood ashes, as it makes the seed germinate more quickly. Crumble up very fine a little more of the compost with a little more leaf-mould and fine sand, and scatter it very evenly and gently over the seeds. Give the pan a very light, but thorough watering with a very fine rosed pot, and place it in a frame or slight hotbed. If you are sowing valuable seeds of your own saving, the following is a very handy method: Take a square pan and fill it with the compost as before directed; then put each seed down separately with the point of a knife in rows, place a number to each row or variety, and keep a register of the numbers and parent plants corresponding with the numbers in the seed pan. In this way you can tell at once what you may reasonably expect in course of time. I make it a rule hardly to cover the seeds at all when first sown, preferring rather to top-dress the seedlings with a little finely powdered leaf-mould and sand when they are $\frac{3}{4}$ in. high. When the seedlings have made about six good leaves, prick them out round the edges of 5-in. pots and put them into a cold

house, hardening off gradually. Always take care of small, weak seedlings; they often produce the best varieties. Sometimes you will find that show or florist seed will give seedlings which take the habit and form of Tree Carnations. These will be easily known by their throwing out shoots all up the main stem, and may be potted off and treated as Tree Carnations. When sufficiently robust, plant them out on a bed about 6 in. or 8 in. apart. It has been recommended to fringe beds of Carnations and Picotees with common garden Daisies, as they are supposed to form some protection to the plants against wire-worm. When the plants bloom, discard anything with notched or serrated edges, and, unless very promising, anything that is not quite double. I make a small bed of any semi-double ones which possess very good qualities, but I make it as far away as possible from my exhibition sorts. They come in useful sometimes in raising new varieties, and in raising large quantities of seed. Layers or pipings of those seedlings whose flowers are a good shape, colour, and size should be made after their first season of bloom. If you have a spare border anywhere, I think it is as well to put into it those plants which as a florist you discard; as a gardener you will probably find they will come in very useful for decorative purposes when you do not want to cut your better varieties. From this time you will treat your seedlings as established plants. It is better to sow choice seeds a little late than too early. If sown early they may throw up flower-stems the same year, which, though very useful as producing flowers, are very injurious to the plants for the ensuing summer's bloom. Now is as good a time as any to sow seed.

Layers.—About the end of July or the beginning of August, when the plants are in full bloom, the side growths may be layered in the following manner: Choose only healthy outside shoots where there are many, and not those which have, or have had, flowers. Strip all the leaves from the shoot, leaving about six at the top; go all round the plant, dressing as many as you intend to layer before proceeding any further. Then remove about 2 in. of the surface soil in which the plants are rooted, and replace it with a compost of loam and leaf-mould in equal quantities, with a very little manure and sand. Then proceed to tongue a layer. Proper knives are made on purpose for layering, but I prefer a common scalpel (such as may be obtained of any surgical instrument maker for 1s. 6d.), as the long handle on which it is mounted gives you absolute command over its movements. Cut the branch from underneath about half-way through just below the third joint from the top, and, turning the blade of the knife (which must be small and fine) upwards, pass it through the joint, and place the tongue thus formed into the compost; place a peg made of wood, broom wire, or a hair-pin (common Fern is the best, as it does not chill) over the tongued layer and press it into the earth, catching the tongue as it descends, and fixing it into the compost. Then layer the next shoot in a similar manner, and so on all round the pot or plant. Then cover the layers with about 1 in. of the compost and the operation is completed. Do not water the newly layered plants till the next day, as by that time the wounds will have healed to a certain extent. Let the layered plants, if in pots, have plenty of air until the layers are rooted, which will be in about six weeks, or a little sooner. Examine them every now and then, and when the layers have rooted pot them off in pairs in 4-in., or singly in 3-in. pots. Sometimes, when layering has been performed rather early, or from other causes, the layers will throw up flower-stems and buds before or directly they have been removed. These should be pinched off at once, unless it is a common variety, and you care to have the flowers, in which case they may be potted up at once and placed in a cool greenhouse, where they will bloom very late, or even in winter. Of course this abnormal inflorescence is highly deleterious to the next season's bloom. Sometimes when unskilfully prepared the layers refuse to root. In this case repot the plants into the same pot and relayer them; leave them through the winter, and they will probably be found rooted in the spring.

Outtings or Pipings.—This operation is not generally so advisable as layering, but where there are more shoots in a pot than can conveniently be layered, the rest may be piped and struck in the following manner: prepare a pot or pan by draining to the depth of 1½ in. with crocks, on this place a thin layer of Moss with a little soot or lime mixed with it to prevent the ingress of worms and slugs; fill to within ¾ in. with the compost before described. Fill up the pot with silver sand, sprinkle with water, knock the pot on the bench or ground to settle the earth, and then prepare your pipings thus: Cut the piping from the shoot a clean horizontal cut just below the third joint, and plunge it about ¾ in. firmly into the sand round the sides of the pot. Do not cut off the tips of the grass of the piping as is sometimes recommended, unless under circumstances described below, as the pipings do not root so well when this operation has been performed as when the grass has been left entire. In some cases where the grass of the piping is very strong, large, and succulent, it is perhaps as well to remove the tops, as the larger the sur-

face of grass presented to the air, the greater the amount of evaporation that takes place; so that when the piping by its size or strength seems to require it, or when it is made later than usual, it is as well to shorten the grass a little. I shorten all my pipings made after August 20. They should be inserted in the pots about 1½ in. or 2 in. from one another, and they had always better be covered with a bell-glass or cloche. Place the pots or pans into a gentle or rather spent hot-bed, and water carefully, never letting the sand remain dry. When they make another pair of leaves they will have rooted, and they may be potted in pairs or singly in the same way as layers. Pipings put into a cold frame in September and left there through the winter will be found to be rooted the following spring. A fact observable about pipings is that they generally flower later than plants produced from layers. Advantage may be taken of this fact to produce a second season of bloom, or to supersede or augment the winter flowering varieties by taking pipings about the middle of October, keeping them in the cutting pans all the winter, and potting into 3-in. pots in spring, and shifting them to blooming pots for the winter in August.

GIROFLE.

PHYTEUMAS.

THE notes concerning these pretty rock plants in THE GARDEN (p. 419) greatly interested me. *P. comosum* and *P. Sieberi* I well remembered meeting with for the first time. The former has a wide geographical range, both in the Tyrol, North Italy, and Switzerland. They are both pre-eminently limestone plants; the first time I saw them was on the dolomitic formation. *P. comosum* in its native haunts is a most beautiful and singular alpine. It has large glaucous, leathery, Holly-like, deeply toothed, or serrated leaves, and handsome globe heads of light blue flowers, borne on stout fleshy stems, varying in height from 1 in. to 4 in., each flower being tipped with brownish-purple. The style, which is twice as long as the flower, resembles in some degree the proboscis of a butterfly. For a long time I did not succeed in persuading this plant to grow. It was always treated as if it required a somewhat dry situation, but latterly I have adopted an opposite course—that of supplying abundance of moisture during its growing season in order to imitate, as far as possible, the melting of the snows in its native home. *P. Sieberi* is not nearly so showy or so distinct a plant as *P. comosum*. There is another beautiful *Phyteuma* which I have met with in considerable quantity on the maritime chain of Alps, viz., *P. pauciflorum*. The flowers of this, which are deep blue, are borne on such dwarf stems that the flower-heads appear to rest upon the miniature tuft of small roundish leaves. *Phyteuma hemisphaericum* is another kind totally distinct from the above. It has long grass-like leaves and dense hemispherical heads of deep blue flowers, borne on wiry stems from 2 in. to 6 in. high. I met with this latter kind on the Auvergne Mountains where the plants were most luxuriant and flowering profusely. When rambling about on the Maritime Alps some years ago, I remember seeing another species of *Phyteuma* quite distinct from other alpine forms; it usually was seen in rich, elevated pastures, and was from 1½ ft. to 2 ft. high. The flower-heads were elongated and the lower portion light blue, while the upper portion, i.e., the unexpanded flower buds, was a sort of glossy brownish-black. Perhaps some of the readers of THE GARDEN can, from this description, give me the name of this *Phyteuma*.

R. POTTER.

Holgate, York.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Comparative Hardiness of Clematises.—The past winter has afforded to growers of this fine family of hardy climbers an excellent opportunity of testing the comparative hardiness of the many varieties of which it is composed. There can be no doubt as to the ability of the Jackmanii section to withstand uninjured the most violent assaults of winter, this portion of the Clematis family appearing to be endowed with an iron constitution, and able to hold its own even in the most exposed situations. It is, however, far otherwise with the hybrid lanuginosa group, which appear to have inherited to some considerable extent the more delicate constitution of one of the parents, being in most cases cut down to the ground line. This is unfortunate, as the lanuginosa varieties flower mostly on lateral shoots produced from the last year's growth, so that the effectiveness of a specimen depends in a great measure upon the preservation of some considerable portion of the old wood in perfect health. Such kinds as *lanuginosa candida* and *carnea* are beautiful objects when covering the side of a house, an archway, or trellis of some kind; and in the case of highly developed specimens, when the pruning is done with judgment, thinning out weakly shoots and allowing the vigorous ones plenty of breathing

space, one of the most delightful effects in garden scenery is obtained. Lady Bovill, one of the really indispensable kinds, is also extremely tender—it must be remembered that I am speaking comparatively—and succumbs to such winters as the last; at any rate, it is cut quite to the ground, and in some instances is, I believe, killed outright. Very little protection would suffice to render these more or less tender varieties safe, and, considering the benefits to be derived from such, the little labour involved thereby need not be grudged. The best plan would be to prune in early winter, and, gathering the shoots together, envelop them in a mat in hard weather.—J. C. B.

Long-established Roots of *Lilium auratum*.—In reference to the remarks on Lily culture in THE GARDEN (p. 390), I may state that I have several clumps of *Lilium auratum* which were originally planted with single imported bulbs, and which have not been moved for periods of seven, nine, and eleven years; all of them are doing and flowering well, one of the former having had last year five stems, the tallest of which was 9 ft. 6 in. in height, and produced in the aggregate, I believe, sixty and seventy heads of bloom. Last autumn we examined and renewed several clumps, which had not been disturbed for similarly long periods, and most of them had medium-sized, sound, healthy bulbs.—J. MCINTOSH, *Dunecvan, Weybridge*.

Colonies of Coloured Primroses.—We noted the other day a group of lilac coloured Primroses under a tree in the gardens at Battle Abbey, a group which had been planted by the Duchess of Cleveland. It is well that the variously coloured Primroses should be grouped or colonised in this way, as we can then enjoy them better than if mixed up in the usual “dotting” manner. Artistic arrangements of this sort will, we fear, have to be waited for so far as gardeners are concerned, and, therefore, we should advise ladies to take them under their care. We have all been so long under the domain of “bedding out,” that these charming arrangements of spring flowers are rare enough yet, though they are the glory of the garden in the early year. Among the many plants suited for the adornment of our gardens, none are more valuable than the varieties of our native Primroses, Cowslips, and Oxlips. They are “untouched” by accidents of our spring, through which other flowers perish or fade. Therefore, pretty ways of arranging them, so as to get the full expression of their beauty and their varied colours, are worth considering. The double forms, so much grown in cottage gardens, are deserving of a better place in larger gardens. There is plenty of room for them, if only as “surface plants,” among Roses and choice shrubs.—*Field*.

Anemones from Seed.—The common garden Anemone is one of the hardiest and gayest of spring flowers, and comes to cheer us at a time when there is but little in the way of bright colour in the open air. When the Snowdrop fades the Anemone breaks into bloom, and, heedless of chilling winds and frosty nights, throws up its richly-coloured flowers from amongst the elegantly divided Fern-like foliage. It is the complete hardiness of the plant, its indifference to wind and weather, that recommends it so forcibly, other points in its favour being its remarkably easy culture and the ease with which it may be raised from seed. No glass roof, no great cultural care is required to induce the seed to germinate freely; on the contrary, if committed to the soil in the ordinary way of sowing, the young plants will come through freely, and if well looked after will make blooming specimens by the next spring. In every garden the Anemone should find a place, it is so bright and cheerful-looking.—J. CORNHILL.

Notes on Hardy Flowers.—The Rev. Wolley Dod's remarks (p. 389) are most useful, and will do much to foster the growing interest now being taken in alpine and other hardy plants. There are some interesting passages about the culture of Primroses and other plants that are very valuable, but I have a notion, from what is there stated, that either his soil or situation is peculiar, else why should Primroses and Polyanthes fail to do well after the third year from seeds? I find no difficulty in growing them from year to year in our light, gravelly soil, which is, I think, the worst possible for Primroses. There is one thing only that almost beats us, and that is red spider. When the days are longest and hottest this pest attacks the plants, and it is difficult indeed to destroy it. It is just possible that Mr. Dod does not divide his Primroses at the right time or in favourable weather. I generally divide them in August, but in that month the weather is not always favourable, so it is well to wait until the ground is moistened by rain. The plants should be put out in rich soil that has been dressed with cow manure, and the surface round the plants should be mulched to retain moisture and keep the ground from cracking. Water should be given freely of course till the plants are established. It is strange, too, that *Anemone stellata fulgens* does not increase and flower freely from year to year. Some planted in our garden five or six years ago

scarcely flowered at all the first year; they improved the following season, and now on the let-alone principle they are finely in flower and better than ever; these and masses of *A. apennina* are now quite a feature. *A. apennina* is, however, quite eclipsed in beauty by *blanda*, which I saw in great perfection in the York Nurseries on the 5th of April; under the same conditions, *A. apennina* would not be in flower for two or three weeks. *Chionodoxa Lucilæ*, in the same nurseries, was flowering freely out of doors covered with hand-lights; this pretty spring flower does best out of doors; the colours are brighter, and I believe the flowers open more freely. Some express disappointment with regard to this flower. So much had been written in its praise, that some grand striking plant rivaling the white Lily was expected, whereas it is only a pretty spring flower, and a worthy rival to *Scilla sibirica*. In the York Nurseries, *Crocus Aucheri* and *C. albiflorus*, a scarce and pretty pure white species, were still in flower. *Leontice altaica* ought to be added to all select collections of spring flowers; its flowers are deep yellow, but at the time of my visit they were passing away, and the colour had gone by the scathing east wind. There were also a nice group of the blue and white forms of *Scilla bifolia*. *S. taurica*, deep blue, and larger in all its parts than *S. bifolia*, is a useful addition to this genus. Yet another flower I noticed in the York Nurseries, viz., *Saxifraga Burseriana*, the earliest and prettiest of this modest group of plants.—J. DOUGLAS.

Quick-growing Cucurbits.—*Cyclanthera pedata* and *C. eximius*, two rapid growing plants, are deserving of a place amongst creepers, so frequently employed in gardens to hide unsightly objects, to clothe a fence, verandah, or pillar. The leaves are not so coarse in texture as those of many of the Cucurbits, and on that account can be used in places where coarser sorts would be objectionable. The flowers are small and numerous, but inconspicuous, and they are followed by small fruits which bear some resemblance to small prickly Cucumbers. These have a delicate Cucumber flavour, if picked previous to the seeds becoming black and pickled in the way in which Gherkins are usually preserved. They are raised from seed, and are treated similarly to Gourds generally or out-of-doors Cucumbers, but if fruits are desired, the plants must occupy an open sunny position, otherwise but very few of these can be expected.—SYLVESTRIS.

Primroses at Marlfield, Clonmel.—This is one of the few gardens to be found in this part of Ireland in which spring gardening alone is maintained, and where beauty and brilliancy all the year round may be said to be almost wholly dependent on hardy herbaceous plants. At present I only allude to a single feature—the great number and beauty of the outdoor hardy Primroses, and their kindred allies the Polyanthes. To grow these satisfactorily and with sufficient shade, alternate dells were cut out of the gracefully winding shrubby border which skirts the flower ground. Every imaginable shade of colour was represented by the single varieties, while the doubles were “Cloth of Gold,” crimson, purple, lilac, rose, and white. There were also in the cool Fernery many of *P. Sieboldi* and *P. amœna* and double Polyanthus types, while *P. denticulata* was flowering finely in the conservatory.—W. J. M.

Coloured Hardy Primroses.—“J. S. W.” seems anxious to obtain a good dark Primrose, as hardy as the wild one and as vigorous. I think he will find the rich crimson *auriculæflora* to be almost as hardy as that, and certainly it is the most vigorous possessing rich colour that I can find. Few, probably, can give experience of Primroses, other than the wild one, cultivated as “J. S. W.” describes, but without doubt his plan is a good one. It does not necessitate that constant lifting and dividing which is the curse of the choice kinds in the hands of the trade. The plants can also be kept fairly cool, and have the occasional help of a top-dressing of soil. There is no reason why even the double white and lilac kinds should not do well. With single kinds it would be well to raise some from seed every year to renew dead or decayed ones.—A. D.

***Clematis coccinea*.**—Messrs. Woolson, of Passaic, New Jersey, write to us: In regard to the hardiness of this plant, we would say that last autumn we planted a large quantity in the open ground, which were left out during the winter entirely unprotected by covering, and, though our winter has been unusually severe, the thermometer going as low as 20° below zero, the plants are pushing their buds vigorously and seem uninjured. We think there is no doubt as to its being hardy in any part of England. We have seen it stated by some people that the flower resembles *C. crispa*, but it is totally unlike that species, as any one at all familiar with the two can readily see. It more resembles *C. Pitcheri*, but is not so strong a grower as that species.

The Scarlet *Clematis* figured in THE GARDEN of March 12 has bloomed in my garden for three years, withstanding a winter temperature of several degrees below zero and it grows more

vigorously each year. It is not a good trellis climber, preferring an old bush to scramble over, which, owing to its vigorous growth, it will cover in a season. The figure of it in *THE GARDEN* fails to convey an idea of the whitish colour which pervades the interior of the flower.—E. L. BEARD, 107, *State Street, Boston*.

Androsace Laggeri (p. 374).—This beautiful little plant is perfectly hardy, even without the protection of a cold frame, but, like many others of the family, is difficult to keep.—HENRY N. ELLACOMBE, *Bitton, Gloucestershire*.

Helleborus foetidus in a Wild State (p. 391).—Dr. Morton, New Brompton, Kent, informs us that this may be seen growing on the chalk hills and neighbourhood within walking distance of his house.

THE GARDEN FLORA:

PLATE CCLXXXII.—VERONICA LONGIFOLIA SUBSESSILIS.

THE flower, of which the annexed plate is a faithful representation, though the limits of the paper hardly admit the full natural size of the spike, belongs to the handsomest of all the hardy Veronicas. It is, indeed, one of the choicest acquisitions recently added to the mixed flower border. It comes from Japan, but we are not informed whether it grows wild there or is a garden variety. Its constitution is certainly superior to that of most Japanese plants, which require a warm spring and a hot summer for their successful development. But this Speedwell grows on and flourishes in spite of spring frosts and cold summers. A small plant with a single stem obtained from Mr. Ware, and planted out in my garden early last spring, flowered beautifully through the summer, and then died down and disappeared as true herbaceous plants ought to do. Before the end of January the young growth was breaking the surface, and by the beginning of March eighteen vigorous shoots were 1 in. above the ground. Some of these I have taken off for cuttings, and find that they strike readily under glass in a few days, and I have no doubt they will go on as well as their parent did, and soon stock my garden.

The genus *Veronica* is a very large one, and includes some very ornamental evergreen shrubs. These, being mostly natives of New Zealand, are none of them quite hardy in all parts of England. Of hardy perennial Speedwells, herbaceous or trailing, or carpeting in their habit of growth, which are suitable for cultivation in English gardens there are at least fifty species, and more than twice as many varieties. The normal colour of the flowers is generally some shade of blue, but like many other blue flowers their colouring is often imperfect, and it then varies to rose colour or dull white. Great variation of form in plants of the same species is another remarkable characteristic of this genus. Those who study the Veronicas in the herbaceous garden at Kew will notice that varieties of the same species often seem to differ far more from one another than plants of different species. It is, therefore, not surprising to find that the naming of the Speedwells is difficult and perplexing. We cannot do more in this notice than mention a few of the more distinct and ornamental forms, adopting as far as we can the names in use at Kew. All the species mentioned below are quite hardy, and will grow in any soil and almost any situation. The first five are natives of Britain.

VERONICA SPICATA, in its genuine form as found wild on Newmarket Heath and the neighbouring downs, is a dwarf plant not more than 5 in. or 6 in. high; useful for bare corners of rockeries; it seldom flowers before the end of July.

V. CHAMÆDRYS (the Germander Speedwell) has been recommended for covering the surface of beds in which late-flowering bulbs are grown; a curious variety of it, *V. c. pedunculata*, is quite different from the type in appearance, and is a neat plant.

V. OFFICINALIS (the common Speedwell) has a nice rose-coloured variety, useful for beds where trailing plants are grown.

V. SAXATILIS, a mountain species, is rather like a small plant of the yellow *Cistus* in habit. It is a good rockery plant with flowers large for the size of the plant.

V. HYBRIDA is generally classed as a variety of *V. spicata*, though it seems quite distinct, being far more robust in habit, with flowers varying in colour from dark purple to lavender and light rose. It grows wild in profusion on mountain limestone hills near Llandudno and other parts of the north-western counties. I have never met with a white variety either of this or *V. spicata*. Both these species increase much in size under cultivation, especially when raised from seed; in fact, they seem to grow into forms which can hardly be distinguished from

V. LONGIFOLIA, the commonest garden species, which is generally sold as *V. spicata* in four distinct varieties, blue, white, rose coloured, and purple, with variegated leaves. The variegation of the latter is uncertain and irregular, but the habit of the plant is very good. In the rich colour of the flower, and the length of the flower-spike, and in its sturdy and compact growth, it comes very near the form of *V. c. subsessilis*, which might easily be suspected of being a seedling from it.

V. GENTIANOIDES is one of the earliest of the Speedwells, flowering in May. Three forms of it are common—the type with grey flowers, a variety with white flowers and bright glossy leaves like those of the *Gentianella*, and another with handsome variegated leaves; all are worth growing.

V. AMETHYSTINA flowers abundantly in June; is of a good colour, but rather too diffuse in habit; it is better to cut the plant down in autumn, as it trails in an untidy way if allowed to continue its growth.

V. TEUCRIUM has flowers of brilliant blue, surpassing all other Speedwells in colour, and is one of the best. It grows 2 ft. high, flowering in June, and has many varieties of form.

V. VIRGINICA and other tall species grow from 3 ft. to 4 ft. high, and flower in July, but are deficient in colour.

Amongst dwarfer kinds suitable for rockwork, besides the native species mentioned already, the best is

V. RUPESTRIS, quite distinct from *V. saxatilis*, though the names are apt to lead to confusion. It is a very good rockery plant, trailing neatly and closely, and flowering abundantly in June. Those who have seen large masses of it on the rockeries of Mr. Ware or Mr. Backhouse will want no further recommendation. There are several nearly allied alpine species.

V. INCANA, with silvery leaves and k, rich purple flowers, growing 6 in. high, seems to me itself happy anywhere.

V. PROSTRATA, another species with many forms, is pretty, but rather straggling in growth.

V. REPENS, making a close cushion of evergreen leaves, likes moist corners at the foot of rockeries.

V. CORYMBOSA is a name given to varieties of two or three species; the best seems to be a form of *V. spicata*; it is a profuse and continuous flowerer, and one of the best for rockeries.

Readers cultivating new or rare plants are requested to inform us of the flowering of such, or to send us specimens or drawings.



ITALIAN SPEEDWELL (VERONICA LONGITA SUBPRESSILIS)

V. PECTINATA, with elegant serrated downy leaves and blue or rose-coloured flowers, is a pretty trailing kind.

These are only a few of the best and most distinct of the Speedwells, all of which are grown here. Collectors will have no difficulty in meeting with many more.

Propagation.—The division of the roots of nearly all Speedwells is so easy, that little need be said about it. The herbaceous kinds root from every shoot, and the creeping kinds root as they creep. They are so hardy that they may be divided or transplanted at all seasons. Such kinds as *V. longifolia* require frequent division to prevent the shoots becoming too crowded. Most of them ripen abundance of seed, and seedlings come up round them which vary in colour and form. I have never tried to hybridise them.

Edge Hall, Malpas.

C. WOLLEY DOD.

[The drawing from which the annexed plate was prepared was furnished by Mrs. Miles, of Bingham.]

SENECIO CRUENTUS.

THIS is similar in some respects to ordinary *Cinerarias*—that is, seed sown in spring and grown on freely will come into flower in the autumn; in foliage and general habit it, in fact, so closely resembles the *Cineraria*, as to stamp it at first sight as belonging to that genus, though in general contour it is more stately than



Senecio cruentus.

any *Cineraria* I have seen, the stout, branching stem, the bright green, slightly convex leaves, and numerous lilac, rose-coloured blossoms, at once arrest attention. These blossoms are, moreover, produced for a great length of time; plants here that were in full

flower in November last are still (April) producing sufficient bloom to make them attractive. The best results, I find, are obtained by planting out in June and lifting in September. In this way it is quite easy to have specimens 3 ft. high and 3 ft. wide. It varies somewhat in colour, some being paler than others, and some lack the characteristic purple disc. The varieties may be perpetuated by offsets, which are rather freely produced. It is a very



Senecio cruentus (flowers natural size).

welcome and desirable plant for a cool house, only requiring frost to be just excluded in order to enable it to produce its flowers. It would be a most useful plant to grow for flower mission purposes, as the flower-stems branch in such a way as to be capable of any amount of sub-division, and the cutting only seems to assist in developing the lateral branches, of which the stem seems to contain a never-ending supply.

T. SMITH.

Newry.

THE GARDEN IN THE HOUSE.

PLANTS FOR ROOM AND CORRIDOR USE.

THE varieties of *Acacia* do not seem to meet with that amount of attention to which their merits would seem to entitle them. All of them possess charming light yellow or orange coloured blooms and hard foliage that suffers but little from confinement in the dwelling house. *A. dealbata*, *A. longifolia*, *A. pulchella*, and *A. falcata* are striking plants when grown in the form of standards and not mutilated and weakened by that too common practice of pinching back the young growths. Such subjects gain new and unexpected beauties if they are merely pruned once as soon as the blooming period is over, and not always then is the pruning desirable if the plant be a weak one. The long twigs and leading shoots when loaded with their pretty blooms and not much hampered with tie or stick are wonderfully telling in half lighted niches and corners where, as is too often the case, decorative plants are obliged to stand. They may be readily propagated from seed, which is easily obtainable from root cuttings in spring and autumn, or from soft wood cuttings in the spring, taking care in removing them that a thin heel accompanies them. They strike best in a temperature of 60° Fahr. without bottom heat and under a bell-glass. Good peat and loam, with a little sand, charcoal, and leaf-mould, suit them admirably. During the first year they may be grown entirely under glass, or they may be plunged after mid-summer in the open ground in a tolerably sunny place, taking care that the drainage is perfect. Small pots grow more floriferous specimens than larger ones. *Mahernia vestita* is another neat little subject. It has pretty agreeably-scented flowers of an orange colour, and produced in great abundance in spring and early summer. It makes erect growing little bushes of 2 ft. or more in height, which require but small supports in the shape of sticks. A mixture of well-decayed peat with a little good fibry loam and leaf-mould grows them well; care should be taken not to overpot them. A temperate house suits them till they come into flower. They are propagated by cuttings made of the young wood placed in a slight bottom heat under a bell-glass. *Callistemon floribundum* and *semperflorens* are useful, almost continuous flowering plants of the New Holland section. The foliage is hard and not easily damaged by hard treatment, and their blooms of brilliant tints. The treatment usually given to *Acacias*

suits them exactly, except that they are more impatient of the knife. Good results are obtained by bending and inclining the shoots, but this is contrary to the habit of the plants, and is therefore somewhat inharmonious. A good basis of shoots should be obtained during the first two years, and then little more will be found necessary than an occasional cutting back of some over-rampant shoots. It is propagated by seed, which is very fine, or by cuttings placed in a moderate bottom heat in the spring. It will be found that none of the above mentioned species are much liable to insect pests, a decided advantage in plants used for window work.

Pendulous-leaved Plants.—Among the numerous and continually increasing numbers of plant novelties brought into commerce, it becomes difficult to make a selection of those which will, when brought to a proper size, be of use for indoor decoration. Many valuable or delicate plants get sadly damaged or killed outright through not knowing whether or not they can withstand the evil effects of the treatment which must of necessity fall to the lot of such plants in the dwelling. I venture to name a few plants suitable for such purposes. Foremost amongst these is *Curculigo recurvata*, which has leaves from 3 ft. to 5 ft. in length and 4 in. in breadth, springing directly from the roots; it has an elegant drooping habit of growth, and is quite effective in foregrounds, large vases, or as an undergrowth amongst taller plants. The colour of the leaves is a cheerful green; its flowers, like those of similar plants, are insignificant and dull in colour. Its leaf colour makes it very useful in places full of shadows, and as a graceful bracket or niche plant it is of great value. It bears confinement and a variable temperature without much damage for many weeks together. It is propagated by seed or division. It should be grown in a mixture of two-thirds loam with one-third peat and a little wood charcoal. The drainage should be perfect, but not excessive; during growth it should enjoy a night temperature of 65°, and a small pot will suit it, as a well-rooted example can always be assisted with some kind of manure, either liquid or other. It should be gradually accustomed to fuller exposure preparatory to its being employed. *Dracena braziliensis* is another plant with good, bold foliage of a light green colour, and, being of a hardier constitution than the new hybrids, can be used in places in which it would be undesirable to place the latter. This sort as well as *D. fragrans* and *D. australis*, when grown to the height of 6 ft. or 8 ft., having at the same time fine heads of foliage, is, when placed among round-headed or pyramidal forms of flowering plants, very effective, the heavy yet graceful masses of greenery being good foils to the colour and forms of the flowers. *Panicum sulcatum*, a broad-leaved Grass of robust growth, growing to the height of 3 ft., is good as a bordering plant; the colour is also light green, as is that of *Cyperus alternifolius* and *C. alternifolius variegatus*. *Anthurium Fontanesi*, a semi-epiphyte, with bold, large, dark green foliage and Arum-like blooms, seems to enjoy shady places. Its culture is simplicity itself, and it does as well on a Mossy block of stone or wood as in a small pot in fibry loam or peat. *Hedychium coronarium* and *venustum*, tall-growing Cannalike plants, with deliciously aromatic-scented yellow flowers, make capital decorative subjects for open balconies and verandahs, in rooms or passages. They should be allowed to make their growth in a temperate house, or in a very warm nook out-of-doors. The blooming period is late summer and autumn. They are all propagated by rhizomes and division, or by slices of the short stem, as with *Cannas*. *Casuarina quadrangularis*, the Cassowary tree of Australia, mixes up well with erect growing or round-headed outlines, and suffers but little by confinement, at least during its season of rest. During the growing season it would not be advisable to use either that or any other coniferous plants for indoor decoration. SYLVESTRIS.

Ink for Zinc Labels.—Mr. Edward Myers (p. 375) recommended a solution of chloride of platinum for ink to be used on zinc labels. This is an old recipe, and an expensive as well as inefficient one for the purpose. True, it writes black on zinc if obtained genuine, and of precisely the right strength, but it is both dear and fickle. A much better ink is made by dissolving sulphate of copper or blue vitriol in water. Sulphate of copper is cheap, and can be obtained anywhere. I take an ounce or two, and dissolve it in water as long as any of the blue crystals remain; this solution is simply perfect. The writing should be done either with a hardwood style or with a blunt quill pen, the latter the best. Zinc labels are by far the most useful and permanent of all the many sorts I have tried, and we now rely altogether upon them. Specimen plants are marked with the name in full length, and in addition to the written name, we punch the catalogue numbers on the peg with dies, of which we have a set, consisting of numerals and letters for this purpose. Offsets or duplicates are thus readily marked off by smaller zinc pegs similarly punched. Sometimes we mark entirely with the

punch by abbreviating the name, as "Sax. pel." for *Saxifraga peltata*. The cheapest way to buy the pegs is to get a sheet of zinc from the tinman's, for which he will charge about fourpence per lb. The best size for pegs is 6 in. by 1 in.—BROCKHURST, *Didsbury*.

NOTES FROM SOUTH WALES.

Gardenias in Small Pots.—We have some plants of *Gardenias* in 6-in. and 8-in. pots which were wintered in a pit where the temperature was often down to 35°, and now they are covered with flower buds; one plant, which might be covered with the open hand, has 23 buds nearly open, and another, which might be concealed under a hat, has 42 buds. About six weeks ago they were fresh potted into a mixture of loam, peat, and ground bones, and the white roots may now be seen running on the surface. They have lately been growing in a house, in which is maintained a temperature of 60° with abundance of moisture at the roots in the atmosphere, and by means of the syringe their great enemy, mealy bug, is never seen. Water thus applied appears to be one of the best ways of keeping the plants free from insects. Some of the cleanest plants of *Gardenias* I have seen lately were in an Edinburgh nursery, where the plants were placed on boards over a water-tank, and I was informed that, thus situated, no kind of insect ever appeared on them.

Fruiting Tomatoes Quickly.—Now that Tomatoes are so much grown, having them as early as possible is sure to become with many a matter of importance. As Tomatoes are usually grown, that is in beds or large pots amongst rich soil, they generally run up a good distance and form quantities of leaves and shoots before coming into bloom or fruit. Under these circumstances they do not bear ripe fruit for a considerable time, and anything like a full crop is often long in being secured, but there is a way of treating them by which this may be avoided. As soon as the young plants are large enough to pot, they should not be put into a size larger than a 3-in. pot. Before they have grown much this will have become full of roots, and as soon as this takes place, bloom soon appears and growth almost ceases. Fruit quickly forms, and in this way little plants not more than 1 ft. in height may be had with from six to twelve fruit on each. As soon as these are well formed, the plants should be shifted into 8-in. pots, and with the stimulus thus given, the fruit will swell up rapidly and the crop will be ready for gathering by the time the first fruits are forming on plants cultivated on the luxuriant growth system. This small pot plant, moreover, has much to recommend it to those who have small houses, and even others also who have more accommodation might probably find this way also answer their purpose.

Apricot Bloom.—Three years ago, when we had a very mild winter and favourable spring, our Apricot trees on open walls were in full bloom by the first week in March. This year they are quite five weeks later. I have been wondering if this lateness is general; and if so, does it bespeak good or bad for a full crop? Personally, I do not dislike their present condition, and I am of opinion that we stand a much better chance of securing fruit from April and May bloom than from that of February and March. Ours is not what might be termed an Apricot district, but I will be greatly disappointed if we do not get a fair crop this season.

Sawdust.—Some of our best cultivators have lately been advocating the use of this for propagating, and it possesses all the qualities claimed for it, but, as a rule, I think it rather light and open for some things rooting freely when used by itself. When, however, a half-and-half mixture of it and sea or silver sand is made up, cuttings in it then root both quicker and better. Further, as the time is now upon us when our fresh little Cauliflower, Cabbage, &c., will be planted out, and will offer tempting meals to snails, many will be at their wit's end as to how to prevent loss, and I may tell them that nothing proves a safer remedy than sawdust. If a good handful is placed around the stem of each plant it acts as a mulching to the roots in dry weather, and whether wet or dry a snail will hardly ever attempt a passage across its surface.

Cutting Asparagus.—Those who have not been satisfied with the imperfect way in which their Asparagus crowns have ripened of late years, should alter their spring treatment this time, and instead of cutting all the heads as they appear for the next six weeks or more, should let the first two or three which appear grow up to form the season's top growth, and cut what follows. This early straw will ripen proportionately early in autumn and the crowns will show the advantage of the system the following spring.

Wistaria sinensis under Glass.—This is seldom seen under glass, but those desirous of possessing a variety of beautiful flowering spring climbers in their conservatories might do worse than add this to their number. There is no other indoor flower which

comes in March and early in April with which I am acquainted that at all approaches its lovely pale blue colour, and for sweet scent few things equal it. Indeed, it is most deservedly regarded as one of the most beautiful of out-door climbers, and under glass it may justly bear the same character. There is a plant of it in the conservatory here, with a stem many inches in circumference, twisted round a pillar, and for some time past it has been a perfect column of beautiful flowers. As it is grown on what might be termed the short spur system, the buds are always formed close to the old stem, and the shoots, always so much inclined to bolt, are closely cut in before they interfere with other things.

Frame Cucumbers.—As the time is now at hand when amateurs will be starting the culture of these for the summer, I would like to point out to them a sure way of raising and securing healthy young plants. As a rule, these are either bought in or raised by some means some time before the bed has been made up, and in both cases it very often happens that the plants get severely checked before they get finally planted in the frame. To avoid all chances of anything of the kind taking place, let the bed be made up carefully, place the mound of soil where the plant is intended to grow, and in this sow the seed. Here the young plants will quickly appear, and the rapidity with which they afterwards gain a fruitful condition will astonish those who have never grown them in this way before.

Double Cropping.—Many who grow vegetables on the most economical principle grow dwarf crops between tall ones, and sow a successional crop before the other one is off, but I do not think double cropping of the kind I am about to mention is very generally followed. As a rule, Strawberries in pots are what most growers pride themselves in growing well, and the heavier the crop the greater the satisfaction; but as only one plant is usually grown in a 5-in. or 6-in. pot, or, indeed, in any sized pot, a very exceptionally heavy crop cannot be secured from this one plant, and those who wish to have an excessive quantity from limited room, or only a few pots, might increase their crops to a wonderful extent by growing two plants in each pot. Last autumn many of our Strawberry plants were potted in this way, and we have now just double the quantity of fruit from each pot which we would have had from the common single-plant way of growing them. The size of pot used is a 6-in. one. In this the plants are placed at opposite sides to each other, therefore there is plenty of room for both developing large strong crowns and a full crop. This is the first time we have tried this plan, with the result of which we are much pleased, and mean to practise it exclusively in the case of pot Strawberries. Pine-apple plants are usually grown in large pots, and some, particularly Queens, make top growth out of all proportion to the size of the fruit, a circumstance which leads one to infer that less growth might serve the same purpose; and so it would, as healthy little plants, when they can be induced to fruit in such a state, often produce larger fruits than overgrown ones. One of the surest ways of getting a Pine plant to fruit is to have the pot well filled with roots, and when grown in 8-in. pots or so, they generally fruit much quicker than in a 12-in. pot, but plenty of roots and fair sized plants may be grown in 10-in. pots if two plants are put into each. When placed at opposite sides to each other, they have plenty of space to develop their leaves and fruit; 3 lbs. or more may be had from each, whereas a 6-lb. fruit of Queen kind cannot always be secured from a single plant in a 10-in. pot. Unless on special occasions, these little fruits are just as acceptable at table as large ones, while the space required for their production is much less. After cutting the fruit from a plant we have sometimes allowed two of the strongest suckers to remain on until they produced fruit, and the double crop thus secured has always been very acceptable. In growing Kidney Beans in pots, if two or three are placed in the centre of each, and a few of Osborn's forcing round the outside, more pods will be secured than if only one kind was grown by itself.

Lime for Peaches.—All good growers of Peaches and kindred fruits agree that a good calcareous soil is more favourable to the production of good fruit than any other ingredient which can be used in their culture, but soil of a limy character cannot always be secured; and where it is thought that Peaches have failed through the want of this, the evil might be overcome if the roots were watered before the stoning period with lime water. A handful to every four gallons of water is none too much, or a dusting may be spread over the border and afterwards watered in. J. MUIR.

Margam Park, Taibach, Glamorganshire.

Daphne Blagayana.—We are pleased at seeing plants which we were the first to figure becoming established favourites in our gardens; and of the above distinct Daphne, this it may be said that it

is likely to prove a very good plant indeed, judging from the bits we see of it shown. These little plants are usually grafted, and this makes us ask whether such plants will become in the end as free and handsome as those growing on their own roots. They may be better, but if so, the fact ought to be known.

SEASONABLE WORK.

Pines.—Early started Queens now swelling freely may be kept at a temperature of 70° by night, and 80° through the day, with a rise of 10° more after shutting up with sun-heat and moisture. With increased light and sunshine the syringe may be used more freely, care being taken that an excess of moisture does not accumulate in the axils of the leaves, and so produce a crop of troublesome suckers. The plants will now require careful attention in the way of feeding as often as water can be given to the roots. As a rule, Pine plants receive more water than is good for them, particularly where they are loosely potted in large pots, and bottom heat is obtained from fomenting materials only. Where fire heat is used there is less danger, but in all cases a moderately moist growing state of the soil should be the aim. Good diluted liquid from the tank is not easily surpassed for general watering, and it is rendered more valuable when used alternately with soot or guano water. All stimulants should be weak rather than strong, perfectly clear, and a few degrees warmer than the house when used.

Successions.—If, owing to the severity of the past winter, the general stock of summer fruiters show a greater inclination to grow than throw up fruit, increase the temperature, reduce atmospheric moisture, and keep them moderately supplied with water for a time. The majority of the plants will make a growth before they fruit, and unless there is likely to be a scarcity of ripe Pines at any particular time, it is best to let well ripened plants take the usual course. Look over the earliest potted stock now rooting freely. Give more light and air. Keep the atmosphere moist and syringe overhead after closing on bright days.

Vines.—When the Grapes in the early house show signs of changing colour a drier atmosphere with increased ventilation will favour the process, but the floors and mulching may be kept well moistened on fine days as a means of feeding and keeping the foliage clean and healthy until after the Grapes are ripe. Where the drying east winds have favoured the spread of spider lose no time in applying the usual remedy or sponging the foliage, and keep the inside borders well supplied with generous liquid. Select the early part of a fine day for this work, and ventilate freely to admit the escape of superfluous moisture before nightfall. If heavily cropped and perfect finish is doubtful give plenty of dry, warm air, and aim at a low night temperature, as undue haste is sure to end in failure.

Succession.—Keep the daily routine of tying, stopping, and thinning well in hand, and on no account allow the last operation to fall into arrears. Give inside borders heavy waterings, using water quite up to the medium temperature of the house. Mulch well, and syringe until the bunches are ready to flower. If, as is sometimes the case, where Vines are gross and badly ripened, the bunches show an inclination to run into tendrils, increase the heat and reduce moisture. Push on late houses by closing early with sun heat, as every point gained now will tell in the autumn. Where new borders remain unplanted lose no time in getting the work finished. Plant inside, if practicable, on borders sufficiently wide for one year's growth. If cut-back Vines, shake or wash away all the soil, spread the roots evenly, cover with 4 in. of compost, and give water at a temperature of 80° or 90°. Spring-struck Vines may be planted in May, as they do not require disturbance of the ball.

Pot Vines.—The fruit on early pot Vines will soon be ripe and capable of standing lower and drier temperature. To maintain a moderate state of moisture at the roots water well and cover up the pots with some kind of dry non-conducting material. Allow all laterals to ramble as a means of producing shade to Hamburgs, and allow white kinds to have full exposure to the sun. If not already done, shift young Vines into fruiting pots, using plenty of clean crocks and rich, rough compost. Pot firm when the soil is dry, and aim at a firm storked growth by training near the glass with full exposure to the sun.

Strawberries.—If possible, remove all pot plants from houses in which Peaches, Grapes, or other subjects liable to be permanently injured by red spider are growing. Good pits heated with hot water, in which the plants can have full exposure to light, answer best. Syringe copiously twice a day at all times when not in flower. Feed well with good liquid until the fruit begins to colour when clear water will be most suitable, and remove to an airy, temperate house a few days before wanted for use. The finest late kinds will now be well advanced, and, as these will, under judicious management, lead up to early crops in the open air, insure quality by thinning off the weak blossoms before they open. A good batch of President, Paxton, or other favourite kind plunged in a cold pit, where the lights can be thrown off on fine days, will give pounds of fruit at a most acceptable time where December-started plants give ounces.

Melons.—Having removed all surplus fruit from the early pot Melons, support those left on small pieces of board suspended from the trellis. Top-dress with strong loam and rotten manure, and water freely with warm liquid or guano water. Carefully preserve all old leaves from the base upwards. Syringe copiously after closing for the day, and run up to 90° with sun-heat. Plants growing on hills train regularly, stop when the vines have covered two-thirds of the trellis, and impregnate all female flowers as they open. Aim at a bottom-heat of 80°, and keep the roots on the dry side until the fruit begins to swell, when more moisture and additional top-dressing may be given.

Pits and Frames.—Plants in pits and frames will require constant care and attention to linings and covering, otherwise they will receive a check, and become a prey to insects. Keep the young vines and foliage thin, and remove all male and female blossoms until sufficient for a full "set" has been secured. Impregnate on fine days, and allow the surface of the bed to become dry during the process. Collect all waste material from Seakale beds, add a little fresh manure, and when in a fermenting state renovate beds from which Carrots and Potatoes have been removed. Form the hills at once, have strong, healthy plants ready, and turn them out as soon as the soil becomes warm. Make frequent sowings for future use, and throw away pot-bound plants before they become infested with spider.

Orchard House.—The fruit in the forcing house will now be stoning, and apparently at a stand, as there will be but little outward difference for five or six weeks; but when this trying process is complete the change will be rapid, and more heat may be given if absolutely necessary. If time is not an object a temperature ranging from 55° to 58° at night, and 65° to 68° by day—with, of course, a few more degrees after closing—with sun, will give the finest Peaches without

distressing the trees. Guard against over-cropping as a very serious evil, always leaving the finest and best-placed fruit to ripen. Stop all strong growths to increase the size, and remove laterals to let in light and air. If the house is quite closed at night it should be well syringed and opened about seven in the morning, gradually reduced after two o'clock, and finally shut about half-past three, with another good syringing. A plentiful supply of moisture will now be needed, but an excess, particularly by night or with a low temperature, will soon destroy the flavour of the fruit. The water used for syringing should be free from lime, and the liquid given to the roots clear, generous, and a few degrees warmer than the mean of the house.

Successions.—As soon as the fruit is safe, syringe twice a day when fine, and see that the roots are regularly supplied with water. Disbud and shorten back to a good shoot above the requisite number of fruit, and pinch the points out of strong growths before they have time to derange the balance of the sap. Give Cherries, Plums, and Pears the most airy part of the house. Syringe well, ventilate freely, and fumigate with Tobacco paper on the first appearance of green fly. Strawberries on shelves will take an abundance of water to prevent the balls from shrinking away from the sides of the pots. Avoid the use of saucers, syringe copiously, thin the fruit when set, and feed with good liquid manure. Keep a sharp look-out for grubs, which may be expected to appear on Plums and Cherries, and hand-pick before they have time to perforate the fruit.

Hardy Fruits.—If retarded growth is the forerunner of a good crop of fruit, the present season should give satisfaction. Stone fruit prospects in this locality are not, however, so promising as was at one time anticipated. The blossom buds on Apricots were extremely thin, and Peaches which made a bad start last spring, although now well furnished with good wood, are not overstocked with flower-buds. Still, if perfect, these may be sufficient to admit of a little thinning. Cherries are abundantly furnished, and Plums may be a moderate crop, but I do not anticipate a glut from trees in late, damp situations. The most important work in this department for some time to come will be the protection of blossoms and embryo fruit from frost by the application of the most available kind of shelter. In early gardens safe from frost young growths may have felt the effects of the scathing east winds if they are not already well stocked with red spider. Where this is the case timely attention to the preparation and application of insecticides is of importance, but it must be borne in mind that at this early season, weak applications can only be applied with safety. For general use the old-fashioned wash of soft soap, sulphur, and Tobacco water is not to be despised, as it is safe, easily applied, and within the reach of all. Look well to newly planted and root-pruned trees. It is not necessary to saturate the ground with cold water, but a good moist mulching, and an occasional dash with the syringe, will help them through this trying spring. If not already done, Figs may be uncovered if not cut down. With us Brown Turkey under a heavy covering of straw has been killed to the ground. Look over old Strawberry beds, remove troublesome weeds which get established in the stools, and at the same time work in the winter mulching as a protection and stimulant to the young surface roots now starting into growth. New beds may now be made where plants have been kept for that purpose. Make them deep, rich, and solid, use fresh virgin loam for planting with, mulch and water.

Cucumbers.—As few plants give a better return than the Cucumber it is too often the practice to allow the plants to exhaust themselves, and so become a prey to insects at a time when good fruit for private use is of the greatest value. Where old plants can be dispensed with a heavy flush may be taken prior to taking them away; but if it is necessary to retain them light cropping is of the greatest importance. Established plants will now take more water at the root, heavier syringing, and the compost used for top-dressing may be heavier than that used through the winter; keep the foliage thin and clear of insects by the application of the usual remedies, and lower the trellis a few inches to prevent it from touching the glass now growth is becoming luxuriant. Ventilate without producing a draught, close at 80° to 85°, run up to 95°, and avoid shading. Continue treatment recommended for frames, renovate linings alternately, cover with dry mats, earth up with rich turfy loam, and keep the young growths thin and free from insects by good cultivation and the maintenance of a steady heat. Make a good sowing of Smith's Frame for planting after forced vegetables. Prepare beds for ridge kinds and plant under cap glasses.

W. COLEMAN.

REMEDY FOR WOODLICE.

IN reply to "H." I would say pour boiling water on or in all their haunts until they are wholly scalded out of their lairs, root and branch. Having thus broken up their breeding grounds, proceed to trap and kill the stragglers in detail. To compel them to be on the move keep all the plants, shelves, and stages moist for a time. Over and among roots, where boiling water cannot be employed, use water at a temperature of 90° or 100°. Water at such high temperature will hardly injure any roots, however young, delicate, or tender, while it will assuredly wake up the woodlice and send them scampering. Every one seen should be picked up and destroyed. Repeat the real and semi-scaldings and soakings until every woodlouse has disappeared. This plan of bringing them out, catching, and killing them, may seem hopeless at first, but it is astonishing how soon it tells upon the pests and reduces their numbers. After they have almost disappeared it is time enough to begin to trap them. There are two sorts of traps—living and dead. The first are live traps; the second decoys and baits of various sorts. Toads thrive and have an enormous appetite in a humid atmosphere; they mope and refuse to eat in a dry one. Hence, if introduced into a clamp stove they will speedily give a good account of every woodlouse left. It is astonishing how many of these pests a toad in good eating condition will devour in a day. I have counted from a score to thirty at a meal, and they pick them up so rapidly with their tongue that you will hardly see them do it. They eat only living moving woodlice. The moment they touch and miss one, which they do sometimes, and he rolls himself up, they will not touch him again, though lying almost under their mouth. Hence the importance of keeping up a moist *regime* until they are destroyed. Woodlice hate water, and will always run away from it if they can.

This brings them under the notice of toads, who snap them up on the run. The moisture also adds powerfully to the efficiency of the traps. When all is damp and the only warm, dry, snug, resting place for woodlice is a pit or box baited with a bit of cold Potato in a bed of dry Moss, they rush into the traps pell-mell till not one is left. If these be emptied every morning into a bath of boiling water, your correspondent's stove will soon be rid of them. But the great danger is in leaving off scalding, watering, and trapping too soon. Catch and kill all if possible, otherwise they will soon appear again in force as if none had been killed. I know not the rate of increase of these pests, but it must be prodigious. And surely of them it may be said, a little one becomes a thousand, a single family a great nation, and their powers of destruction seem even to exceed their numbers.

D. T. FISH.

Hepaticas.—Never have I seen Hepaticas finer than this spring; the single varieties when seen with their flowers well open in sunshine are far handsomer than the doubles, not excepting the old double blue. The doubles red, rose, and blue, however, have the advantage in more constantly showing their bright colours, whilst single ones are frequently to be seen half closed, when only the "washy" colours of the outer sides of the petals are to be seen. It would be very desirable that these beautiful spring flowers should, if possible, be improved in this respect, as has been done in several varieties of Daisy. *H. angulosa* has only just done flowering, having been in bloom here nearly two months; several flowers have measured 1½ in. across, and the foliage is already well developed. *H. acutiloba*, which I flowered for the first time this spring, has a greyish-pink bloom, smaller than that of the commoner kinds. The calyx is largely developed, and is very conspicuous from the corolla, shooting abruptly from it by means of a trumpet-shaped tube like a Hose-in-hose Polyanthus; the leaf is very distinct in the way its specific name suggests; it is also less hairy and of stouter substance than that of the ordinary varieties.—J. WOOD, *Kirkstall*.

THE INDOOR GARDEN.

PLANTS FOR HANGING BASKETS.

IN the remarks on these which appeared in *THE GARDEN* (p. 395), the writer has, in my opinion, left out several of the best, for assuredly nothing can be finer or better adapted for furnishing hanging baskets than Rollisson's Unique Pelargonium, the habit of which leaves nothing to be desired, as it trails over in the most graceful manner possible, and flowers profusely when suspended and exposed, as it then is, to plenty of light, which hardens and matures the growth. The effect it produces in baskets is greatly heightened by mixing with it a plant or two of the white Ivy-leaf or, better still, *L'Elegante*, the contrast between the two colours being very pleasing, as they blend and associate so well together.

Next, perhaps, in point of merit to the above named Pelargoniums are Achimenes of different kinds, which in globular-shaped baskets are very beautiful, as they may be so distributed and grown in them as to cover every portion, and form a perfect mass of bloom. These baskets may be easily made by any ordinary handy-man if he is supplied with stout galvanised wire, from which the frame can first be formed, and then the wire run round spirally about 1 in. or so apart till the basket is finished, shapeably like a bird's nest, when by laying Moss round the sides it may be at once filled with soil and furnished with Achimenes. These can readily be inserted regularly over by making holes with the finger or a small dibble, but the plants must be put in when just started or struck from cuttings, as then they have few roots and suffer but little check through the disturbance they undergo. For growing Achimenes in this way peat is the best soil, or a mixture of that and half-rotten Moss answers perfectly, as does also leaf-mould, and the latter with a little loam, the Moss being desirable on account of its sponge-like nature for holding and retaining water, of which Achimenes, when flowering, require liberal supplies, and always suffer materially if allowed to get dry. Many of the fragile or procumbent Fuchsias are also grand for baskets, as their pendent flowers can always be seen to the greatest advantage when the plants are elevated; and then, again, there are the tuberous and other Begonias that always look somewhat stiff and uncomfortable in pots where they have to be staked up and tied, but which hang naturally and gracefully over the sides of baskets and need no support. Single Petunias, too, are equally at home, and are gorgeously beautiful.

Another plant I can specially recommend for these is *Convolvulus minor*, the blue of which is quite unrivalled, and as the blooms are the same shape and size of some of the Petunias, the two may be shown together, but when this is done, white or light sorts of Petunias

should be chosen, as the colours then harmonise and set each other off. For baskets containing any of the plants referred to, I find it is a good plan to have a tin like a kind of saucer to fit the bottom for the inner basket to drop in, which tin catches the drainage, and the soil or roots in contact with it take it up again during the twenty-four hours of day and night, and the plants so favoured never suffer from want of moisture as they otherwise frequently do. The way to have baskets that they may be easily got at without climbing steps is to have pulleys and a cable wire cord running from one basket to another; when the two being of about the same weight, either can be pulled down and examined, attended to and watered, and drawn up again with but very little labour and trouble.

Among Ferns for baskets, none are more suitable than *Asplenium flaccidum*, the fronds of which arch over and droop down in a very graceful manner; indeed, this particular kind of Fern must be elevated in some way to show its real beauty. *Pteris scaberula* is another of quite a different habit, having creeping rhizomes that soon find their way quite over the sides of a small basket, and the fronds, being very finely divided, are exceedingly elegant, quite equalling in this respect any of the choice stove varieties. Where any of these can be grown, none are more graceful than *Nephrolepis davallioides*, which has fronds quite a yard long that trail over and attract the notice of even the most casual observers. As a companion to this, *Goniophlebium subauriculatum* is one of the best, and for greenhouses, *Nephrolepis tuberosa* forms a striking object, as that, like *Pteris scaberula*, will quite clothe a basket with beauty, and *N. pectinata* is a lovely miniature form of it that requires the heat of a stove. *Acrophorus immersus*, though deciduous, is a very desirable Fern for baskets, as it sends its fronds through all amongst the wires above and below, as does also *Adiantum setulosum*, which is quite a gem and grows freely in a perforated shell of a cocoa-nut. *Lygodium scandens* and *L. palmatum* are likewise specially adapted for basket culture, and both will grow and flourish in a very small body of soil.

S. D.

MARTYNIAS AND THEIR CULTURE.

THERE are few annuals more beautiful or more effective than the Martynias when grown in pots. A brisk bottom heat of from 70° to 75° is necessary in order to obtain quick germination, and the seed-pan must not be allowed to get dry from the time of sowing till the young seedlings are well up. The middle of February is early enough to make a sowing, as the young plants are very liable to damp off during dull weather. Pot them singly into 3-in. pots as soon as they have formed their seed leaves, giving them a warm genial temperature, and water them very carefully till they have become established. Shift them into larger pots as they advance, always giving abundance of drainage, and a light rich sandy compost. They should have their first spikes of bloom removed, and if large plants are desired, they must be kept



Martynia proboscidea.

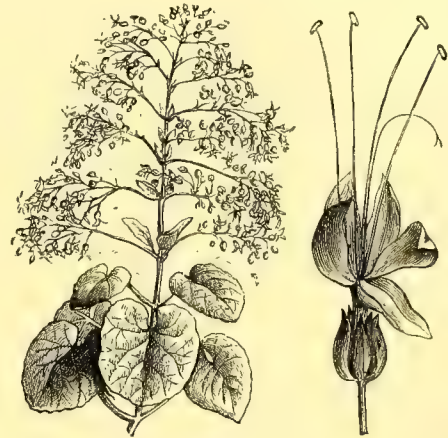
pinched until the end of July, when they will form fine plants, with from eight to a dozen heads of bloom, which for size and richness of colour will surpass the finest *Gesneras*. About the middle of June the plants should be removed into a warm frame, and be kept fully exposed to the sun, shutting them up early in the afternoon after damping the walls and under the plants with a syringe, but not over the foliage. As they begin

to expand their blossoms a drier atmosphere must be given them, and when in full bloom they should have a trifle warmer temperature than that of an ordinary greenhouse, otherwise they will not fully expand their fine spikes of flower. The varieties most generally grown are *fragrans*, *lutea*, *tricolor*, and *proboscidea*, of the last of which the annexed is a representation.

J. ROBERTS.

CLERODENDRON SQUAMATUM.

THE *Clerodendrons* are a numerous family, but there are only a limited number of them that possess the character of growth and flower requisite to make them valued as decorative plants. Still, *C. squamatum* and a few others rank amongst the handsomest flowering stove shrubs which we have. This species may be propagated from cuttings at any season when half ripened shoots about 4 in. or



Clerodendron squamatum.

5 in. in length can be had, but, in common with most plants of a like character, such young shoots as are suitable for striking are usually most readily obtained in the spring, after some growth has been made, say the beginning of May. The cuttings should consist of two or three joints, removing the lower leaves; put them singly in small pots filled with sandy soil, the surface all sand, keep them moderately close and moist in a propagating frame, or under a bell-glass with enough shade to prevent flagging in a temperature of 70° of 75°; so treated, they will soon root, when give more air, and by degrees dispense with the propagating glasses entirely. As soon as the pots are moderately filled with roots, move into others 3 in. or 4 in. larger, using good ordinary loam with some sand and a little rotten manure. When the young plants have made a little growth, pinch out the points of the shoots, which will cause them to break more, and when these latter have got a few inches long tie them out horizontally to lay the foundation for a bushy shape; keep them through the summer in an ordinary stove temperature with air daily, standing them where they will receive plenty of light.

This *Clerodendron* does not require so much shade in bright summer weather as many plants; give no more than is found necessary to preserve the leaves from scorching, syringe freely each afternoon at the time the house is closed; continue to treat thus until the middle of September, when give more air, discontinue shading, and syringe less. Through the winter a temperature of 60° will be enough in the night, with a few degrees more in the day, giving less water to the roots, yet never letting the soil get too dry, or the leaves will suffer. About the end of February increase the temperature somewhat, and as soon as growth has fairly quickened move into pots 6 in. larger. It is a very free rooting plant and will bear a liberal shift. As the days lengthen give more warmth and treat in the matter of water, shade, and air as during last summer, using the syringe freely to encourage growth and keep down insects. The shoots will have extended apices and will each want a stick to support them. By the beginning of May the plants will most likely show bloom; the flowers, scarlet in colour, are produced from the extremities of the shoots, in the form of large erect branching panicles, and grow fast after they are formed. When the flowers are opened the plants may be kept a little cooler, which will prolong the bloom. After the spikes are exhausted they should be cut out just above the first joint from which they have sprung. This will cause the plants to push new growth from the point where the old stems have arisen that will flower, during the development of which give manure water

once or twice a week; this will much help the second blooming. When the flowering season is again over, cut the plants down to within three or four joints of where they were first stopped, and encourage them to make new growth. As soon as the shoots have grown a few inches, turn them out of the pots and remove a portion of the old soil, putting them in pots a little smaller and giving less water at the roots. Winter as before, and when growth again commences in spring give a liberal shift, treating as previously advised. This second season of blooming they may be expected to make a fine display, producing a number of panicles. Let them have liquid manure directly the bloom appears, treating generally as recommended so far. The plants will last for a number of years if large specimens are desired. Should these not be wanted, strike young stock each year, destroying the old examples after their second flowering.

This *Clerodendron* may be raised from seed, to mature which the flower-stems must be allowed to remain after the first blooming in early summer. When ripe the seed will come off with slightly touching. Sow at once in a pot of fine sandy soil, covering the seeds lightly; keep in a temperature similar to that in which the plants have been grown. The seedlings when large enough should be moved into 3-in. pots, treating them through the autumn and winter the same as cuttings; early in the spring put them in 6-in. pots and use them liberally in the matter of heat and moisture; by the middle of May give them 9-in. or 10-in. pots, in which allow them to bloom. They will make handsome decorative subjects with single heads of flower; after they have bloomed treat them as advised for cutting raised plants.

Insects.—The use of the syringe recommended will keep down red spider and thrips; should scale or mealy bug affect them, sponge with clean water, and in the autumn when the plants are headed down, wash with insecticide. T. BAINES.

EURYA LATIFOLIA VARIEGATA.

FOR the embellishment of the greenhouse or conservatory this prettily variegated Japanese shrub is most useful, as it contrasts well with *Camellias* and similar dark foliaged plants, and always looks well, whether in summer or winter. Not only is this *Eurya* suitable for the above named purpose, but it is also equally so for ornamenting rooms, halls, or corridors, where it always stands well, as, from having such thick leathery leaves, it is indifferent to atmospheric influences and unaffected by dust. Its habit of growth is naturally bushy, but it may easily be trained and grown to any form, that of the pyramid being perhaps the best, and the one to which it lends itself most readily, although, with a little coaxing, it may be got up as a standard, plants of which are very striking in the centres of groups, or for relieving flatness and uniformity. To run them up as standards all that is necessary is to take out any side shoots as they show themselves, which will force up the lead, and when this has reached the height required the point should be nipped out, when the top part will soon break, and by stopping the shoots that emanate from thence nice symmetrical heads may be made. If pyramids are desired, the side branches must be encouraged till they attain a length sufficient to form the frame, when they too should be stopped as well as the lead, and the plants will then furnish up of themselves. The way to get good specimens quickly is to grow on from the cutting state in moist peat, as by so doing much time is saved, and the plants get to a useful size in a year or so. To keep them free from thrip, red spider, &c., when under such treatment, it will be necessary to syringe freely, and to give them rest by subjecting them to a cool temperature during the winter. Like most shrubby evergreens, the *Eurya* will stand hard pruning, and may therefore be kept close and compact by an annual cutting back, which should be done early in spring, when the buds soon start again and refurnish the plants with new foliage. As to soil, the *Eurya* will grow freely in either peat or loam, but the variegation comes out best with plants growing in the former, or a mixture of the two if plenty of sand be added, as when growing liquid manure can be given to assist in the full development of leaf. To strike cuttings, the best way is to take them off with a heel, and to put them in early in the autumn, and stand them in a cold frame for the winter to callus, when by subjecting them to a little artificial warmth in the spring they root at once, and start rapidly off into growth. S. D.

Solomon's Seal.—Few native plants are more useful than this for indoor decoration, or for embellishing pleasure grounds; for, although devoid of brilliant colouring, its graceful arched growth and drooping bells render it the very ideal of a decorative plant, as

it is well nigh impossible to make it look stiff or formal, needing as it does neither tying nor training. We have used it largely for conservatory decoration; large strong clumps, lifted from the reserve garden and potted in the autumn, are introduced to gentle heat in succession with ordinary Dutch bulbs, and they quickly develop fine heads, the fresh green colour of the foliage being especially pleasing. Plunged in groups amongst *Lycopodium*, associated with *Lily of the Valley*, they are very effective and last a long time in good condition. For drawing-room stands, too, they are excellent, as their tall spikes arching over an undergrowth of dwarf plants give a natural and free aspect to any arrangement, impossible to attain with plants that need stakes or ties to keep them erect; as cut flowers also in large spikes few plants are more effective in large vases. But it is in the flower garden in which they may be utilised with the best results, for they are such strong rooting subjects that there is no fear of their being overpowered by other vegetation, and in recesses in shrubberies large groups of them are particularly fine, springing from a carpet of *Primroses* or other dwarf plants. In fact, *Solomon's Seal* is capable of an unlimited number of really effective combinations, and if it had been but recently introduced as an exotic plant and awarded a first-class certificate, a large price would be readily given for it; but being only a native, requiring no especial care in its cultivation, has hitherto kept it from enjoying that popularity which it deserves.—J. G.

Sunken Houses.—"Peregrine" characterises my sunken glasshouses as "ugly, stuffy, mildewy structures." He is evidently unacquainted with their undoubted advantages, although he begrudgingly allows that they save something in fuel. That is just the important point—they do save not a little, but a great deal in fuel. Four-and-a-half inch brick-work is not much protection against severe frost when the whole of the structure stands above ground, but when the walls stand more than 3 ft. under the ground level, the small portion of necessity exposed admits but little cold. I have yet to learn that the same amount of brick-work when above ground is an object of beauty and should not be hidden. Underground houses and pits are common enough, both in private gardens and in nurseries at the present day; therefore, the charge against me, that I advocated an old-fashioned, exploded method, is quite unfounded. Houses above ground or under it are "mildewy" just so far as cultivators make them so, by injudicious watering and ventilation. Many things are by some called old-fashioned which I, for one, should be glad to see "in fashion" again, such as strength and solidity, goodness of materials, and, consequently, durability in our garden structures. The cry is always for more light—always light, and so our builders continue to put up wooden and glass houses for us that prove very expensive, being constantly in need of repairs. We are going back in our taste for hardy flowers and simpler garden styles, and why not cull from our predecessors some useful notions in garden buildings as well?—SYLVESTRIS.

Forced Hardy Flowers at Newcastle.—The ever-increasing demand for flowers in winter and early spring has brought about a generally better system of treatment, whereby hardy plants show little of the ill effects that often used to be apparent in forced flowers, which too frequently were so far true to the term forced, that they were not much better than nominal representatives of their respective kinds, possessing little of their natural beauty and equally little endurance. At a recent show held in the Corn Exchange, Newcastle, *Deutzia gracilis*, *Dielytra spectabilis*, *Hoteia japonica*, and double Wallflowers were produced in such quantities, and in such uniform well managed condition, as I have never before seen them. The *Deutzias* and *Hoteias* alone were a feature in themselves, filling one side of the roomy building, the plants mostly large and profusely bloomed. *Dielytra spectabilis* is a subject that will not bear hurrying, and most of the plants shown had been so treated as to have more the appearance of out-door growth than of having been forced. Wallflowers are not often met with grown as pot plants, but here they were, the half dozen which took the first prize being especially worthy of notice. They were confined to a single shoot each, the stems very thick and strong, densely furnished at the base with stout leaves, and surmounted by strong spikes of unusually large flowers, almost as big as those of a good strain of double Balsam; the plants were from 18 in. to 2 ft. high, and in the case of those who like sweet-scented flowers, and have little beyond an ordinary cool greenhouse to bring them on early in spring, few things could be more acceptable.—A. Z.

Second Year Hyacinths.—I believe it is the usual habit for *Hyacinths* to deteriorate in the second year, and yet certain *Hyacinths* I procured last year are considerably increased in size and splendour this year, and some have more spikes, though all semblance of a young bulb the year before had been removed. One also (double) has a third small set of petals besides the double set.

Where can I procure information about the culture and propagation of Hyacinths?—PHILIP BROKE. [In THE GARDEN, Vol. XVIII., p. 312.]

Sarracenias.—I am not aware that anyone has told us that the curious, but handsome flower of *Sarracenia flava* is richly scented. Several *Sarracenias* are now in flower here, and they are very attractive. The blossoms of the one just referred to are scented like those of a Primrose, which they also resemble in colour. My plants are now in a warm greenhouse, but the same plants were wintered in 1879-80 in a well ventilated cold frame. I find them to succeed well if placed in small pans of water.—J. WOOD, *Kirkstall*.

THE KITCHEN GARDEN.

FROST AMONG THE VEGETABLES.

SELDOM has the frost proved so destructive to these as during the past winter. When the snow disappeared, the Greens that had lain under it looked safe and fresh. This was especially the case with Broccoli that had been heeled over; these presented a striking contrast to those that had stood erect and had lifted their heads above and through the snow-line. These last were black and rotten, while the former were fresh, green, and apparently safe; but things—alas! things—are not always what they seem, and this was emphatically so with our Broccoli. For a week or two all seemed well with them; soon, however, black lines and blotches appeared on the stems, which began to decompose rapidly and to give out the most offensive odour. In some cases, two out of three, and in others, three out of four, of those Broccoli that seemed safe and sound, after zero's touch and the snow-storm, succumbed and disappeared. Cabbages were also cut alike, almost above and below the snow-line. The old stumps that prove so useful in supplying spring Greens were cut off by wholesale, and there are many blanks left among the spring Cabbages. Brussels Sprouts also suffered so much that many rotted, and the Sprouts were so greatly injured as to be unfit to eat. The clearance of salad plants was almost complete. Even Brown Cos Lettuces and Hardy Hammersmith beneath south and west walls were cut off, and late Endive that mostly proves hardier in some districts than Lettuces, and that comes in so useful in the early spring, was cut off clean to the last leaf. Turnips, early Carrots, winter-sown Peas, and Broad Beans were also wholly destroyed or crippled. Globe Artichokes, unless where well protected, seem quite dead. The only vegetables that do not seem to have suffered more than usual are winter Onions and Spinach. Cauliflowers under handlights, unless sheltered with extra protection, are also very much injured, while all in the open, though close to south or west walls, have been cut off. Vegetables are remarkably scarce and must needs be dear, and every effort should be made to hasten on those sown under glass in the spring. About the hardiest Green in all the garden is, without doubt, Gilbert's Cabbage Broccoli, which is the only Green that I have yet been favoured to eat this cold spring-tide. After about a week of genial weather, the wind has again returned to the north-east and has blown to-day quite strong with an energy and a destructive force as if it had had its keen edge whetted on a series of icebergs.

D. T. FISH.

Laying Winter Broccoli (p. 358).—The destruction of Broccoli has been such this winter that few are now to be seen anywhere except in gardens where they have been what is termed laid, which shows conclusively the value of the practice, and yet many object to it on account of the check sustained reducing the size of the heads; but that is a small matter compared with a total loss of a crop. The heeling over to be effectual should be done early in October, and the stems completely buried up to the first leaves, which is not such a formidable operation as it appears at first sight, as the plants may be laid very slanting, and the stems so covered without moving much earth. The short-stemmed kinds are of course the easiest and best for laying in, and not only that, but they are the hardiest, as they are altogether more sturdy with woody fibre, which renders them better able to bear hard frosts than such as are of a more sappy nature. Those which I have always found to stand best are Model and Cattell's Eclipse, both of which are valuable sorts that turn in late and carry on the supply up to the time Cauliflowers come in. I generally manage to save most of the autumn and early winter varieties, such as Veitch's, Snow's, Backhouse's, and Osborn's, by heeling them in under the shelter of a south wall where they can have a little long straw thrown over them on the approach of sharp weather, and the plan answers so well that I can recommend it to others. Sowing and planting Broccoli thin has much to do with their enduring the winter, as they are less drawn, and by standing

farther apart get more air and sun amongst them to build up and harden the tissues, and this is why it is that those grown in fields and market gardens often escape when others in enclosed spaces often get killed. Planted 4 ft. apart with a row of Potatoes between, both crops are benefited by the increased room without waste of ground, as the Potatoes are dug and cleared away by the time the Broccoli reach their full size.—S. D.

Mushrooms in Cellars.—In some of the old cellars under the ruins at Battle Abbey, the gardener, Mr. Burgoyne, has commenced the culture of Mushrooms in a very successful manner. We are not all possessed of such vast cellars for this or any other purpose, but the fact is none the less interesting, and may have other practical bearings than those apparent at first sight. The equability of temperature secured by these deep and large cellars, especially when any side light they had is excluded, is an important factor in the culture of the Mushroom, which sometimes fails in structures built specially for it. A full consideration of the condition under which the culture is most successfully practised would probably lead to a change in our mode of planning the "Mushroom house." It would be no loss if that structure were under the ground instead of above it. An excavation in the side of a dry hill or bank would suit better than the house usually made, and need not be so expensive. Even a large pit, excavated in dry soil and roughly covered over, would maintain more equable conditions for Mushroom culture than the ordinary house above ground.

Notes on Potatoes.—I agree with "Cambrian" (p. 244) that whatever we grow for eating flavour should be placed first, but in the case of Potatoes this rule seems to be reversed. Let a Potato be ever so beautiful in shape, if it is not of good table quality it is of little value. I have often thought it would be a step in the right direction if supporters of Potato shows would give prizes for dishes of Potatoes when cooked, as is done in the case of some local shows. Also when any new kind is shown to offer prizes for one dish of it cooked and one otherwise; then one might judge of its value both for eating and appearance. Who ever heard of a grower for market growing Porter's Excelsior, Red Emperor, Grampian, and many other show kinds? Potatoes are grown in quantity in this neighbourhood for market, but the sorts for keeping consist of Scotch Champions, Regents, Paterson's Victoria, and some few Magnum Bonums.—J. C. F.

Walcheren Cauliflower and Walcheren Broccoli.—These are undoubtedly one and the same thing; but, being entered in catalogues under both Cauliflower and Broccoli, purchasers are often misled; and I have known many try it as winter Broccoli, although it is as tender as any other Cauliflower, of which it is really one of the very best for succession during summer and autumn. I generally sow a small batch under glass in February between rows of early Potatoes, and if the young plants be pricked out in cold frames, they make a useful succession to the autumn-sown Cauliflowers. We sow in open borders in March, April, and May, and put out a few rows at a time between rows of early Peas that are planted at wide distances apart, as I find both Cauliflowers and Broccoli do best on firm land; and for late autumn use we generally plant a large quantity from the May sowings, when early Potatoes have been cleared off, by simply levelling the soil and drawing deep drills in which to insert the plants and retain the water, if the weather is dry and sultry at planting time in July. From this planting we get fine heads in the autumn, and by carefully tying up the leaves to protect them from early frost, and shaking dry Fern fronds or litter over them (or lifting and storing them in frames), they may be enjoyed for many months; but, except in more genial winters than we have had lately, they are useless for standing out in winter, for which purpose Veitch's Protecting, Snow's, or Backhouse's Broccoli are in every way superior, being able to resist ordinary frost when forming a head fit for table.—J. G. LINTON.

Dusting Seedling Vegetables.—Although it may seem a small matter, it is of the highest importance to be prepared beforehand with a good supply of dry material ready for dusting over vegetable crops as soon as they are fairly through the soil. We find wood-ashes, soot, and lime mixed together a very efficient dressing, and it also acts as a good manure, thereby pushing the young plants on rapidly past the critical stage when they are specially liable to attacks from vermin; and in sowing such crops as Carrots, Turnips, &c., it is a good plan to cover the seed in the drills with the same material, as it has quite a magical effect on the young crops.—J. G., *Linton*.

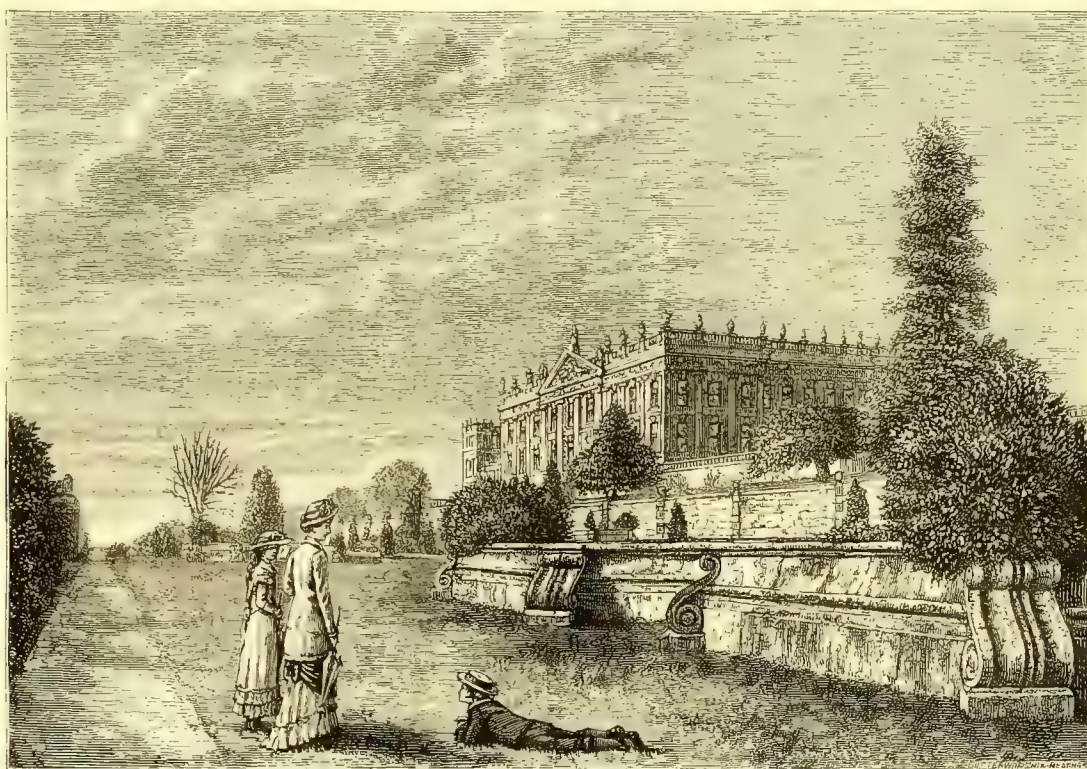
Watercress.—Having been a grower of this artificially, I would suggest that your correspondent (p. 387) makes his moat say an even depth of water from 2 in. to 3 in. in which he might insert his young plants and firm them with a small quantity of loose gravel. The water in the moat should run through slowly. In winter if the moat is not too

wide, it could be easily covered with sashes, in which case Watercress can be had all the year round.—J. H. C.

THE EFFECT OF THE TERRACE WALL.

VERY often in rambling through the country we have had occasion to study the effect of the terrace wall approaching the house from some pleasant part of the park. This adjunct very often catches the eye where one might expect something better. The parks of England are famous throughout the world for their sylvan beauty, and we think they are frequently much marred by the somewhat common prevalence of the so-called terrace garden made within the past generation or so. We have often in *THE GARDEN* considered these from the house and the flower garden point of view, but the most dismal sight of all is looking

this is not what one would call by any means a bad example, or even a typical one of what is meant, and yet it serves to point out the idea to which we wish to call attention. Another subject of some importance connected with this is the fact that these terrace walls very often prevent the formation of a beautiful wide lawn; in many cases they have been made on a beautiful lawn, and, of course, destroyed it. Now, there is no denying the fact that a simple, large, fairly-kept lawn is one of the best features in gardens. Unhappily, there has been so much cutting up, geometry, and stone-work, that it is extremely rare to find a place where a good lawn is left. There is many a place cut up by terrace gardens and other formalities which would be enormously improved by the substitution of a simple wide and nobly-fringed lawn. Just imagine the effect of a well-built and fine old house seen from the extremity of a wide lawn,



Terrace wall (one of the least objectionable types).

to the house; if this wall be raised, as it must be in places on the level, or nearly level ground, so as to cut off the foreground of the house itself from the park, we hold that a bad effect is always produced. A beautiful and well-placed house is one of the things that should not be cut off by any commonplace, hard, and often ugly object such as a terrace wall. Let the house be sheltered and relieved by trees, and bring their beautiful forms near and around it. Add as many living graces as we can to the scene without impeding the view from important points, but to cut off the whole of what ought to be the best considered spot in the place by a terrace wall is, it seems to us, an extremely doubtful proceeding. We could name several places, laid out at great cost within the past twenty years or so, where the effect from the park beyond the garden is about as cheerful as looking against a piece of the wall of Clerkenwell Prison, especially when the observer is near the wall. The illustration which accompanies

with of course plenty of trees and shrubs on its outer parts, with nothing to impede the view of the house or its windows but a refreshing carpet of Grass; and then, standing in the same position, consider the wisdom of what has so often been done—viz., the facing of such a house with a terrace. The truth is, that a very common, poorly-built house with a fine lawn has a better effect than a fine pile with a geometrical garden and terraces in front of it. If owners of parks were to consider this pointfully, and, as they travel about, watch the effect of such lawns as remain to us, and compare them with what has been done by certain fashionable landscape gardeners, there would shortly be in many a country seat a rapid carting away of the terrace and all its adjuncts.

We of course would except cases in which the terrace was really called for by the nature of the ground, and we have no desire to limit the flower department in any way; on the contrary, to increase it. The few more or less complicated and finicking

beds that are on these terraces, and serve the place of the flower garden, are generally not half sufficient for growing all the beautiful flowers we ought to grow. The attempt to make the varied beauties of our garden flora all conform to the same rules and occupy the same spot will never give a satisfactory result. In removing, in a large place, such a blot as we point out, and in forming a sweet unbroken lawn instead, we should, according to the circumstances of each place, make from two to six times the amount of flower accommodation in various parts of the garden or pleasure ground—on the outer fringes of the lawn, by the sides of the pleasant walks, or anywhere that favourite plants can be grown and would look best. We should abolish all finicking and pattern beds and adopt simple large forms, oval, circular, or with an irregular outline in the case of very large masses, and in this way could give infinitely more variety and pleasure than with any plan laid out at once like a carpet. The natural features of the garden would in this way relieve the eye and assist the artist; groups or specimens of trees, fine clumps of shrubbery, would come in to produce a good effect between each of the special floral features which are the pride and care of the gardener to develop year by year.

ORCHIDS.

ORCHIDS IN THE YORK NURSERIES.

IN looking over so large and varied a collection of these plants as the one at York, where several large houses are entirely devoted to their growth—low span-roofed houses for kinds which need abundance of light and air, and lean-to houses for those which luxuriate in a somewhat cooler, moister, and more shady position, such, for instance, as some of the *Dendrobium* and *Masdevallias*, &c.—it is somewhat difficult to discover which to admire most. The first plant which attracted attention was an exquisite variety of *Cattleya Mendeli*, with broad, massive, white petals, and a deeply frilled crimson and white lip. Not far from this was another variety, with large blossoms of a lovely delicate rose, the lip being broad and crimson and white in colour. *Cattleya Skinneri* is here well represented, and its beautiful *Dendrobium*-eyed variety. The blossoms are borne in clusters and are of the most intense rosy-purple, ornamented with a distinct dark centre or eye. Another charming Orchid, on a block of wood suspended from the roof, was *Dendrobium Paxtoni*, with long racemes of brilliant orange blossoms having a large blotch of dark crimson on the centre of the lip; the edges of which are charmingly fringed. Near the above was the sturdy *Dendrobium thrysiflorum*, with drooping racemes of lovely white and yellow blossoms; beneath these was *Trichopilia suavis*, with large, curiously marked blooms, the odour of which filled the house with a delightful perfume. Another Orchid, the flowers of which pleased me much, was *Chysis bractescens*, with three wax-like, white, fragrant, almost circular blossoms. *Epidendrum amabile* is a rare and little known species, but not showy; still there is something in the little flowers which attracts one, possibly the delightful perfume which it emits. Of *Dendrobium densiflorum* there is an unusually large example, but most of the blossoms were past; still, there were sufficient to tell how grand an object it had been.

In another low span-roofed house there is one of the best displays of *Odontoglossum vexillarium* one need ever wish to see; the flowers vary greatly in size, and colour from almost white to deep rose, and on measuring one of the latter it was found to be more than 4 in. in diameter. *Odontoglossum Phalænopsis* and *O. Rossi* were also in bloom. *Oncidium concolor* is a fine lively Orchid with clear yellow flowers. *Vanda tricolor* and *V. suavis* were likewise both in good condition. Passing into another house, the eye rested at once on the fine large massive snow-white wax-like blossoms of *Cymbidium eburneum* with its *Hemerocallis*-like leaves, the very picture of health; in the same house were also the pretty spotted blossoms of *Colax jugosus*, and several species of *Cypripedium* specimens large enough to fill a barrow, and many of them flowering finely. Another Orchid, the flowers of which are unusually beautiful, is *Dendrobium Cambridgeanum*; it has a dwarf stunted habit with short racemes of gorgeous orange blossoms, ornamented with a large brilliant crimson blotch near the throat. What grand Orchids, too, are the *Phalænopsis*, so exquisitely beautiful, varied, and so graceful in habit! Two varieties of *P. Schilleriana*, one much darker than the type, and *P. grandiflora*, with its snow-white blossoms, were both in excellent condition.

Leaving the sun and light-loving kinds, let us now look at those which prefer a damp, humid atmosphere, and here was found a

gorgeous display of dazzling scarlet and crimson. I allude to the blossoms of *Masdevallia Harryana*; some of the plants, though no apparently large, have as many as twenty flower-stems. P. R.

***Dendrobium macrophyllum*.**—I send you some blooms of this, I think, too little grown Orchid. For six weeks past I have had three large hanging baskets in bloom, and, for colour and size of flower, this species is unsurpassed by any of the *Dendrobiums*, although out of twenty plants I have failed, as yet, to get any individual blooms as large or of such a blue shade of mauve as that represented in "Warner's First Series." It appears to take the temperature of our warmest houses, growing vigorously 2-ft. to 2½-ft. bulbs in the season, and producing fifteen to twenty blooms on last year's growth. An important point appears to be to get the growth well forward before the long nights of autumn and winter set in, as it frequently shows for bloom even before the growth is finished. I find peat suits this plant better than Sphagnum. When the blooms are well forward it should be removed to an intermediate house, where they last three weeks, and the cool atmosphere also induces the various blooms to expand over a longer period. This Orchid has only one drawback—the strong perfume of *Rhubarb* emitted by it when in flower.—M. A. Voss, *Streatham*.

Fine Variety of *Odontoglossum vexillarium*.—Mr. E. Fowler, of Ash Grove, Pontypool, sends us a flower of this superb Orchid, measuring 4½ in. by 3½ in. in size. It was cut from a spike of six flowers, all about the same size and brightness in colour. The same correspondent also sends a flower of *Odontoglossum crispum* (Alexandria), the petals and sepals of which are beautifully suffused with a clear rose tint (not the purplish hue usually seen). It is a lovely variety, and we do not remember seeing a better rose-coloured form.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

APRIL 26.

THOUGH the exhibits of this meeting were not so numerous as at the last, there was an unusual number of new and rare plants, most of which were of high merit. To the following first-class certificates were awarded,—

Mr. J. McIntosh, Duneevan, Weybridge, for—

***Kerria japonica* fl. pl. major.**—A variety of the well-known double-flowered *Kerria* with orange-yellow blossoms, between 2 in. and 3 in. across, forming a perfect globular rosette. It was received by the exhibitor direct from Japan.

Mr. G. F. Wilson, Heatherbank, Weybridge, for—

***Erythronium giganteum*.**—A beautiful North American Dog's-tooth Violet, the largest of all the species. It grows about 1 ft. high, and has an erect stem sharply recurved at the upper part, bearing a solitary flower 3¼ in. across, with the segments spreading horizontally. The colour is white, with a ring of orange and brownish-crimson on its interior base. The leaves are as large as those of *E. grandiflorum*, but the mottling is less pronounced.

Messrs. J. Veitch & Sons, Chelsea, for—

***Croton Sinitzianum*.**—A variety having narrow leaves from 1 ft. to 2 ft. in length, which gracefully recurve. The variegation consists of a deep green and a rich golden hue, which with the blade being here and there interrupted, and only leaving the midrib, gives the plant a singularly interesting appearance.

***Aralia Kerchoveana*.**—A handsome fine foliaged plant, particularly adapted for dinner-table and such like embellishment. It has an erect habit and spreading leaves, with elegantly mottled stalks, and broad blades divided into about a dozen narrowly lance-shaped segments, each coarsely toothed at the edges, giving them a wavy appearance. It is a native of the South Sea Islands, and will doubtless prove a valuable plant.

***Goniophlebium lachnopus*.**—This new Fern reminds one of *Polypodium plumosum* in the character of the fronds, which are from 12 in. to 18 in. long, pinnate and decumbent, proceeding from creeping slender rhizomes. It will form an excellent object for suspended pots or baskets in a greenhouse, for which its habit or growth and elegant appearance eminently adapts it. It is a native of North India.

***Asparagus tenuissimus*.**—A most handsome plant, having the leaves divided into infinitely fine segments, giving them a feathery appearance. It is a greenhouse plant, and is specially adapted for training to a rafter or pillar, and is invaluable for cutting purposes.

Davallia elegans polydactylon.—A large growing Hare's-foot Fern with broad triangular fronds of a rich shining green and thick texture. They are finely divided, and each pinna has a tassell-like tuft at the tip, rendering the plant highly ornamental.

Messrs. H. Cannell & Sons, Swanley, for—

Cineraria Marched Past.—A new variety with unusually fine flowers measuring $2\frac{1}{2}$ in. in diameter. The florets, about a dozen, are broad and of great substance, and arranged in a perfect circular outline. The colour is a rich velvety maroon inclined to purple, and with a conspicuous pure white ring encircling the dark centre. The plant, moreover, is of fine robust habit, and a profuse bloomer.

Mr. Robert Veitch, Exeter, for—

Rhododendron exoniense.—A lovely greenhouse plant, remarkable for its fine habit of growth, which is rounded, dense, and compact without tying or training. The flowers are about 3 in. across, shallowly bell-shaped, and delicately crisped at the margins. The colour is pure white, with here and there a dash of pink, which, with the pink tinged unfolding buds and the rich green foliage, render the plants extremely ornamental. It is hybrid, raised by crossing R. Veitchi and R. ciliatum, and the progeny partakes strongly of both parents.

Mr. R. Parker, Exotic Nursery, Tooting, for—

Saxifraga (Megasea) cordifolia purpurea.—By far the finest form of this species yet exhibited. The foliage is broad and handsome, and the stout flower-stalks rising high above it bear large, dense clusters of rich rosy-pink blossoms, which give the plant a striking appearance.

Mr. Lyon, gardener to Sir E. H. Scott, Bart., Sundridge Park, Bromley, Kent, for—

Mignonette Miles' Spiral.—An extremely fine variety raised and exhibited some years ago. The flower-spikes are stout and erect, and rise about a foot high, and are furnished for about half their length with dense whorls of large blossoms emitting a powerful perfume. It is by far the finest variety yet raised, and the plants shown on this occasion well exemplified its high merit.

Mr. H. Heims, gardener to Mr. Philbrick, Q.C., Oldfield, Bickley, for—

Odontoglossum Alexandræ Regina.—A lovely variety remarkable for the large size of the flowers and breadth of petals, which with the lips is copiously spotted with heavy, rich chocolate blotches on a white ground. **O. Ruckerianum.**—The plant shown was a very fine form of the species which is much in the way of O. Andersonianum, the flowers being large and heavily spotted on a pale ground flushed with purple. This differs from ordinary forms by the spots being more aggregated into clusters.

Messrs. Fisher, Son, and Sibray, Handsworth Nurseries, Sheffield, for—

Rhododendron Lady Alice Fitzwilliam.—A greenhouse variety of fine bushy habit of growth, and profusely laden with lovely white flowers, which are borne in clusters of three or four, nestling among the rich green foliage. The flowers are some 3 in. across, having the edges waxy, and the corolla dashed here and there with rosy-pink, the buds being also of the same hue, giving the plant an effective appearance. It is, like R. exoniense, a valuable addition to greenhouse Rhododendrons.

Mr. R. Dean, Ranelagh Road, Ealing, for—

Auricula Splendour, a beautiful self variety of a rich brownish-crimson colour encircling a bold white centre; a most effective plant. **A. Mrs. Moore,** a laced-flowered variety of a rich velvety-plum colour with white centre, and beautifully laced with a pale shade, after the manner of the laced Polyanthus. **A. purpurea,** a very fine variety, with perfectly double flowers of large size, and of a rich deep purple, seven of which were produced on a stout erect stalk rising above the bright green leaves.

A second-class certificate was awarded to Messrs. H. Cannell & Sons, Swanley, for **Polyanthus Queen of the Hose-in-Hose,** a pretty variety with gold-laced corollas, produced plentifully in umbels on stout stalks.

Among the more noteworthy of the other exhibits in the Council room were the following: *Cattleya Skinneri*, a large plant about 1 yard across, and some three dozen bulbs, thirteen of which had produced flower-spikes, each bearing from six to ten blooms. This fine specimen was quite an exhibition in itself, and showed well what a splendid Orchid it is when grown so finely. Such successful results was all the more remarkable on account of its being grown in a pot only about 8 in. in diameter, thus fully exemplifying the desirability of not over-potting. The plant was grown and exhibited by the Hon. and Rev. J. T. Boscawen, Probos, Lamorran, Cornwall, who was deservedly awarded a cultural commendation.

Messrs. Veitch exhibited, beside those plants certificated, *Azalea hydrangæflora*, a profusely-flowered variety in the way of *A. amœna*,

but with rosy-pink flowers; *Masdevallia Chelsoni*, an interesting hybrid between *M. Veitchi* and *M. amabilis*; *Odontoglossum Andersonianum* var. *amabile*, a lovely variety having blossoms with a rich gold crested lip, and copiously spotted with chocolate on a purple flushed ground; *Dracena Lindenii*, a new species with leaves variegated with longitudinal bands of green and pale yellow; *Cyrometra Manni*, a shrub of small growth, having its young pinnate foliage of a reddish hue, and two *Caladiums*, *Pyrrhus* and *Princess Beatrice*, both strikingly handsome varieties.

Messrs. H. Cannell & Sons, Swanley, exhibited a fine display of gold-laced Polyanthuses, exemplifying their fine strain; a similar display of Auriculas in fine variety; spotted, erect-flowered Gloxinias, which are now becoming so popular; cut flowers of zonal Pelargonium Henry Jacoby, an intensely deep crimson sort; P. Lord Byron, a pink-flowered zonal with an immense truss of bloom; Chrysanthemum frutescens grandiflorum, a fine form of Marguerite or Paris Daisy; cut blooms of a fine new Tropæolum, said to be intermediate between T. canariense and Lobbi, and a new zonal Pelargonium named La France, which is in the way of the variety Dr. Denny in colour, but with much larger flowers.

Captain Patton, Regent's Park, sent two pretty and interesting new Californian alpine plants, *Hesperochiron pumilus* and *californicus*, and *Lachenalia orchioidea*, under the name of L. glaucine. From Messrs. Heath & Son, Cheltenham, came a tree Carnation named Dr. Abercrombie, with large, double, sulphur-yellow flowers streaked with pink. Mr. Hudson, Gunnersbury House, Acton, sent cut blooms of the white double-flowered Peach, one of the most beautiful of deciduous Rosaceous trees.

Messrs. J. Carter & Co., High Holborn, exhibited cut blooms of the gorgeous *Cianthus Dampieri*, an Australian plant of reputedly difficult culture, but with which the exhibitors have had exceptional success this season at their nursery at Forest Hill. Messrs. Carter also showed a panful of the pretty, quilled, double, crimson Daisy Rob Roy and a variegated Forget-me-not named Blush. Some plants of the variegated form of *Deutzia gracilis* were shown by Messrs. Laing & Son, Berkhamstead, which were certainly very elegant, though not in flower.

Messrs. Fisher, Son, & Sibray sent, for comparison with their Rhododendron certificated, R. Sesterianum, magnificum, fragrantissimum, and various other greenhouse kinds. A hybrid Amaryllis, named A. Farquharsoni, said to have been the result of crossing A. formosissima and A. vittata, was shown by Mr. Farquharson, Wrexham, but the plant was far inferior to the varieties lately exhibited by Messrs. Veitch and others.

Mr. Dean had a pretty group of Polyanthuses, Primulas, Auriculas, &c., among which were the double blush-white Primrose (now very scarce), Polyanthus Gertrude, Buttercup, Mauve Beauty, Bridesmaid, Meteor, and Bedford Gem, all of which were very fine, particularly the two last named.

Fruit and Vegetables.—These were scantily represented. A fine dish of Keen's Seedling Strawberries was shown by Mr. Lyon, Sundridge Park, Kent, to which a cultural commendation was accorded; and a similar distinction was given to Mr. Sutton, Worksop, for green and ripe pods of Vanilla. Mr. Burnett, gardener to Mrs. Hope, Deepdene, Dorking, exhibited samples of Early Paris Lettuce, said to be an excellent early sort, to which a cultural commendation was given. The same exhibitor also showed branches of Apricot to show how thickly the fruit had set this season.

The Conservatory was again gay with several extensive groups of plants, and rarely has been seen a finer display of pot Roses than on this occasion. The group from Messrs. Paul & Sons comprised the largest plants, all being extremely well flowered, and four baskets of *Maréchal Niel* were unsurpassable for large size and fine quality. These have been produced in a Camellia house as plants trained to the roof as a means of shade for the Camellias, and this fact no doubt accounted for the remarkably fine colour. A gold medal was deservedly awarded to their collection, and a similar award was given to Messrs. Veitch & Sons for an extensive group of standard Roses all superbly flowered and intermixed with the elegantly cut-leaved Maples from Japan, which greatly relieved the somewhat formal appearance of the Roses. On either side of the group of Roses were groups of Clematises of various kinds, all profusely flowered and in the rudest health, attributable, we understand, to the application of "Clay's Fertiliser" manure, which has also been applied to the Roses, all of which were in 8-in. or 9-in. pots—a size very small compared with the heads of bloom and foliage.

Messrs. Lane and Son, Berkhamstead, likewise showed a fine group of pot Roses, which, though of smaller size than the preceding, were examples of skilful culture, and moreover represented a great variety of kinds. Two large groups of Rhododendrons, also from the Berkhamstead Nurseries, produced a brilliant effect, and were with the Roses appropriately awarded a gold medal. A small collection of choice hardy flowers came from Messrs. Osborn and Sons' rich

collection at the Fulham Nurseries, which included some pretty varieties of *Fritillaria Meleagris*, *Anemone Robinsoniana*, a lovely little gem; *Muscari Szovitzianum*, one of the best of the Grape Hyacinths; *Dielytra eximia*, *Triteleia uniflora* lilacina, and two noble variegated leaved plants, *Heraclium Frederici variegata* and *Hemerocallis Kwanso variegata*. An effectively arranged group of plants from Mr. Aldous was awarded a silver medal, and this, with Messrs. Barr and Sugden's fine display of Daffodils and other spring flowers, and a group of *Cinerarias* from Chiswick, comprised the chief of the exhibits.

Lecture.—Apropos of a group of Maples from Japan, exhibited by Mr. Veitch, the Rev. G. Henslow made some remarks upon the affinities of the existing Japanese and South United States floras with that of the ancient Miocene period in Europe. He observed that of the extinct Swiss Tertiary flora and of the existing Japanese flora there are seventy-one Natural Orders or familiar in common; fifty-one are represented by identical genera; but, probably, no Miocene species is now extant. The following orders and genera are characteristic of both the Swiss Miocene and modern Japanese floras: *Coniferae*, *Leguminosae*, *Lauraceae*, *Aceraceae*, *Rhamnaceae*, *Juglandaceae*, *Moreae*, *Protaceae*, *Palmae*; *Quercus*, *Salix*, *Ficus*, *Liquidambar*, *Myrica*, and *Ulmus*. With the existing North American flora, the old Swiss Miocene had even more in common than the Japanese. There are eighty-eight genera of seventy-three orders which are represented both in Switzerland and in the South United States floras. The groups which especially characterise the United States forest vegetation are *Taxodium*, *Magnolia*, *Liriodendron*, *Hickories*, *Walnuts*, *Planera*, *Maples*, *Negundo*, and *Oaks*. About 300 genera are common to the Southern States and Japan, while the eastern side more nearly corresponds to the Old World vegetation than the western side of North America. With regard to the origin of this similarity, Dr. Unger considers the emigration to have taken place from America to Europe. He thinks that the living flora of the Eastern States of America is the lineal descendant of that which gave rise, by aid of Atlantis, a supposed submerged land, which is thought to have connected Europe with America, to the Swiss Miocene flora. Sir C. Lyell thought the route taken was the longer one, round by Japan, and not by Atlantis, but still from America to Europe. Instead, however, of regarding either Switzerland or the United States as the origin, there is the theory of Prof. A. Gray, that as the Miocene flora appears to have been uniformly spread over the whole of the regions bordering the entire Arctic circle, so, when the northern climates became cooler in the next or Pliocene age, this flora was driven southward along every meridian, its descendants now existing in the localities above mentioned. These now form a belt, roughly speaking, between the 30th and 40th parallels of latitude. Migration to some extent might have taken place along that belt, but the greatest migration was probably from north to south. The lecturer next called attention to the collection of Clematises exhibited by Mr. Veitch, pointing out the connection with the Buttercups by means of the *Anemone*. He alluded to the calyx being coloured, and so superseding the necessity for a corolla, though this was frequent in the sub-genus *Atragene*. He described the European Ferns introduced in the sixteenth century and the splendid Japanese kinds imported within the last fifty years, which have supplied the innumerable existing handsome sorts. The method of climbing by means of the petioles, which are sensible to touch, formed the subject for some remarks. A fine specimen of *Cineraria* from Mr. Cannell, which was named "Marched Past," was shown, as well as a branch of the old original *C. cruenta* for comparison, which well showed what the florist's skill could accomplish.

Scientific Committee.—Potato Disease.—Dr. Masters read extracts from a MS. (the author's name being withheld) on this subject, the chief point being that the author imagines *Bacterium* or *Englæna* to give rise to the fungus *Phytophthora infestans*. He placed on a patch of cooked Potatoes some fluid containing *Englæna*, and after keeping it at a temperature of 60° to 70°, some fungus appeared in seven days, and after a fortnight the *Phytophthora* was developed. *Sarracenia* petals.—Mr. W. G. Smith observed that the petals are usually pendulous, but on placing cut blossoms in a saturated atmosphere, they became spreading and saucer-like. It was suggested that this was due to turgidity after having absorbed moisture. *Rhododendrons*.—The Hon. Mr. Boscawen exhibited several trusses of seedlings, as also cut blossoms from *R. Thomsoni* and *R. campylocarpum*, which had withstood nine degrees of frost. He also exhibited a branch of *Andromeda formosa*, which was perfectly hardy, and which rabbits refused to eat, while it was poisonous to goats. He also exhibited a wild form of a double Primrose. *Scilla italica*.—Mr. H. Crewe exhibited a white variety of this flower from Mentone. *Clianthus Dampieri*.—Mr. Carter forwarded a fine spray of this beautiful Leguminous plant from Australia, for which a vote of thanks had been accorded by the floral committee. Violet diseased by *Puccinia violæ*.—Specimens were forwarded by C. M.

Owen, from Gorey, Ireland. The fungus was in a very incipient stage. Books presented to the Lindley Library.—*Epitome of Gardening*, by Moore and Masters; *Guide to the Literature of Botany*, by B. D. Jackson.

ROYAL BOTANIC SOCIETY.

APRIL 27.

THIS was the second spring show of the season. It was extensive and excellent in every way, for though the competitive classes were not nearly so numerous as they sometimes are, the exhibits were of a higher quality than on the last occasion.

New Plants were exhibited by Messrs. Veitch & Sons, Chelsea, and consisted of *Dracæna Lindenii*, *Odontoglossum Andersonianum* amabile, *Asparagus tenuissimus*, *Croton Sinitzianum*, *Azalea hydrangæflora*, *Masdevallia Chelsoni*, *Cyrometra Manni*, *Goniophlebium lachnopus*, *Davallia elegans polydactylon*, *Croton ancitumense*, and *Aralia Kerchoviana*. Mr. H. James showed *Aerides Southgatei*; Mr. Robert Veitch, Exeter, *Rhododendron exoniense*; Mr. B. S. Williams, Upper Holloway, *Aralia monstrosa*, *Masdevallia Shuttleworthi*, *Oleobachia palustris*, *Bulbophyllum siamense*, *Dieffenbachia Imperator*, *Philodendron elegans*, *Azalea Madame de Greve*, *Croton Lady Zetland*, *Croton Austinianum*; Messrs. Fisher, Son, and Sibray had *Rhododendron Lady Alice Fitzwilliam*; from the General Horticultural Co. came *Cyperus laxus variegatus*, *Dracæna Rossi*, *D. recurva*, *D. Knausei*, *Rhapis humilis*, *Philodendron Wallisi*, *Encholirion Jonghi*, *Dracæna Alexandræ*, *Rhodea japonica aurea variegata*, *Caladium Frederick Bause*, *Gloxinia Mrs. Bause*, *G. William Ross*; Mr. Croucher, gardener to Mr. Peacock, Sudbury House, Hammersmith, furnished *Odontoglossum Alexandræ grandiflorum*, *Agave Parryi*, *Mesembryanthemum truncatum*, *M. Ellisi*, *Yucca Peacocki*, and *Agave Hunti*; Mr. Charles Turner, Slough, had *Auriculas* Lord Beaconsfield, Lizzie, John Bull, President, Mrs. Stafford, Sensation, Philip Frost, Mariner, Hilda, Mr. W. Brown; Mr. Smith, gardener to Miss Cheir, Papworth Hall, St Ives, showed *Pelargonium* (Bronze Zonal) Miss A. M. Leventhorpe; from Mr. Little, Hillingdon Place, Uxbridge, came *Pelargonium* (decorative) *Rosy Morn*, *Amaryllis Crimson Glory*, *Cineraria Model*, and *Mauve Queen*; Messrs. Paul, Cheshunt, showed *Mad. Eliza Taisson*; Mr. Baxter, Barnet, *Amaryllis White Lady*, *William Parker*, and *Alice*.

Botanical Certificates were awarded to the following:—

Messrs. Veitch & Son, Chelsea, for—

***Dracæna Lindenii*.**—A very ornamental species, with handsome broad foliage, elegantly recurved and variegated with longitudinal bands of green and various shades of yellow.

***Asparagus tenuissimus*, *Aralia Kerchoviana*, *Davallia elegans polydactylon*, and *Goniophlebium lachnopus*,** all of which were described in the preceding report.

Mr. B. S. Williams, Upper Holloway, for—

***Philodendron elegans*.**—An ornamental Aroid, having leaves 10 in. to 12 in. long by 6 in. broad and deeply pinnatifid. It has a scandent habit of growth, and will be found valuable for rustic work in stove or warm greenhouse.

***Croton Lady Zetland*.**—A compact growing variety, with long lance-shaped foliage, which droops gracefully. The variegation consists of mottlings of yellow, dark orange, and crimson on a dark, shining green ground.

The General Horticultural Company, for—

***Philodendron Wallisi*.**—A handsome Aroid, with large heart-shaped leaves, prominently ribbed on the under surface, and of a rich emerald green spotted with deep green.

***Caladium Frederick Bause*.**—A dwarf-growing kind, with small leaves of a rich reddish-crimson, having a broad margin of deep green.

***Rhodea japonica aureo-variegata*.**—A hardy Japanese herbaceous plant, differing from the ordinary variegated form in having the variegation of yellow and green instead of white and green. It is a pretty plant and useful as a pot plant.

***Cyperus laxus variegatus*.**—An elegant variety, with the broad leaves prettily variegated with alternate longitudinal markings of creamy yellow and green.

***Dracæna Rossi*.**—A compact-growing variety of erect growth, with handsome broad leaves of a crimson hue. ***Recurva*,** with broad and strongly recurved leaves of a deep green, with broad streaks of magenta-pink. ***Alexandræ*,** an erect-growing form with broad leaves, elegantly variegated with broad streaks of creamy white and green.

Mr. Croucher, gardener to Mr. Peacock, Sudbury House, Hammersmith, for—

Agave Hunti.—A species with stiff fleshy leaves arranged in a compact tuft, spineless at the margins, but edged with a line of deep brown, and with a medial broad band of greenish-white.

Agave Parryi.—A small-growing kind, forming a rosette some 9 in. across. The leaves are short, thick, fleshy, of a glaucous grey hue, and beset at the tips with a long, sharp, black spine.

Yucca Peacocki.—A handsome new species with long, narrow, stiff leaves, forming a globular head 3 ft. in diameter.

Odontoglossum crispum grandiflorum.—An extremely fine variety with large flowers, having conspicuous and heavy blotches of rich reddish-brown.

Floricultural Certificates were awarded to—

Mr. Turner, Slough, for—

Auricula Mrs. William Brown.—A fine white-edged variety, with a good truss of perfectly formed flowers. Also for three alpine varieties: **John Bull**, a rich deep maroon, with large gold centre; **Philip Frost**, deep purple, shaded to a lighter hue on edges, and with white centre; **Lizzie**, deep Plum colour, shaded to a lighter hue, with pale yellow centre.

Mr. R. T. Veitch, Exeter, for—

Rhododendron exoniense.—The fine new variety described in our preceding report.

Messrs. Paul & Son, Cheshunt, for—

Rose Ferdinand Chaffolte.—A splendid hybrid perpetual variety, with large flowers, of fine form, and a deep, rich crimson colour.

Mr. Douglas, Loxford Hall, Ilford, for—

Auricula Hilda.—A green-edged variety, with large and perfectly shaped flowers.

Messrs. Fisher, Son, & Sibray, for—

Rhododendron Lady Alice Fitzwilliam.—The same as described in our preceding report.

The General Horticultural Company, for—

Gloxinia Mrs. Bause.—A large erect-flowered variety of a pure white colour, with a broad and attractive ring of rosy-pink just within the throat.

Stove and Greenhouse Plants were shown much finer than on the last occasion, some really creditable specimens being represented. In the best collection, shown by Messrs. Peed, Streatham, were some excellent Azaleas, *Pimelea spectabilis*, *Erica Devoniensis*, and *Aphelexis macranthum purpurea*. The two other collections included fine plants of *Boronia pinnata* and *Tabernaemontana coronaria*; other plants in these groups were not so good. The best collection of nine *Cinerarias*, six *Amaryllises*, and nine *Pelargoniums* was exhibited by Mr. Wiggins, all certainly fine, particularly the *Cinerarias*, which were remarkable for the large heads of bloom in 8-in. and 9-in. pots. The *Pelargoniums* included *Florence Beadsman*, *Kingston Beauty*, *Anderson's Rose*, *Miss Bradshaw*, *Magenta Queen*, *Rosy Morn* (new), and *Miss May Gill*, all good for early flowering. Among the *Amaryllises* were two or three fine seedlings and *Princess Dagmar*, *Mdlle. Titiens*, and *Fairstar*, all superb sorts. One other collection of *Cinerarias* was shown, and two other *Amaryllis*; among the latter were some very pretty forms.

Roses.—Of these there was a remarkably fine display from Messrs. Paul & Sons, Cheshunt, who were the only exhibitors in the competitive classes. In the class for nine plants in pots, they had grand examples of *Comte de Serenye*, *Victor Verdier*, *Madame Victor Verdier*, *La France*, *Perfection de Monplaisir*, *Beauty of Waltham*, *Madam Therèse Levet*, *Cheshunt Hybrid*, and *Madame Lacharme*. Messrs. Paul also showed the only competing collection of six new Roses sent out in 1878-79. It included *Edouard André*, *Catherine Souper*, *Duke of Teck*, *Mdlle. Julie Dymonier*, *Madame Eliza Taisson*, and *Léon Renault*. The same exhibitors also showed a grand miscellaneous group, including half-a-dozen splendid baskets of cut blooms of *Maréchal Niel*, for which they were deservedly awarded a large silver medal.

Mr. Douglas and Mr. Turner were the only exhibitors of twelve *Auriculas*, and both were very fine, the former taking the first prize. His collection included two selfs, *C. J. Perry* and a seedling, *George Lightbody*, Dr. Horner, *Lancashire Hero*, *Smiling Beauty*, *Hilda*, *Admiral Napier*, *Campbell's Green Edge*, Dr. Kidd, and *Frank Simonite*. Mr. Turner—*Clipper*, Lord of Lorne, *Pizarro*, *Charles J. Perry*, *Topsy* (most beautiful selfs), Mr. W. Brown (new), *Smiling Beauty*, *Arabella*, *Beauty*, *Colonel Champneys*, Dr. Horner, and *Unique*. A collection of 150 plants of *Auriculas* was exhibited by Mr. Charles Turner, Slough, including all the types of the flower, a double yellow being very conspicuous. The selfs and alpine varieties were finely shown, and they, above all others, were most admired. Among other miscellaneous exhibits was a group of greenhouse *Rhododendrons* with pure white and blush-tinted flowers, from the *Handsworth Nurseries*, Sheffield; a fine collection of cut *Roses* from Mr. Walker, Thame; *Pansies* from Mr. Hooper, Bath; a group of hardy flowers from Messrs. Osborn, Fulham, including many choice

and attractive kinds. In a tent erected on the front lawn there was a fine display of *Rhododendrons* and *Azaleas* from Messrs. Lane & Son, Berkhamsted, who were awarded a silver medal.

Azaleas were well shown in the competing classes; the amateurs exhibited the largest plants, which were of the usual formally-trained pyramidal character. Those from nurserymen were smaller, but of far better quality, and more profusely flowered, representing less common kinds, the collection from Messrs. B. Peed & Son, who took the first prize, being particularly noteworthy in this respect. A fine collection of about fifty plants was shown by Mr. Turner, Slough, which were all finely grown and flowered, and representing the majority of the best varieties. The exhibitor was deservedly awarded a large silver medal. Messrs. Lane & Son, Great Berkhamstead, were the only exhibitors of hardy *Rhododendrons* and *Azaleas*. Of the former they had fine plants of *Auguste Van Geert*, *Purity*, *Guido*, *Everestianum*, *Rosabel*, *Duchess of Sutherland*, *The Queen*, *Roseum Pictum*, *Scipio*, H. W. Sargeant, and *James Mason*. The *Azaleas* were likewise very fine, the varieties being *Consul Pecher*, *Baron Edmond de Rothschild*, *Ebenezer Pyke*, *Comte de Gomer*, *Alphonse Lavalée* (dark varieties), *Ch. Français Luppès*, *W. E. Gumbleton*, *Isabella Van Houtte*, *Chevalier de Reali* (light varieties), and with the dark include all the first sorts.

The west wing of the conservatory was occupied by a remarkably fine and extensive collection of standard *Roses* in pots, representing most of the leading sorts, flanked on either side by groups of *Clematises* of various hues, and the whole interspersed with the elegantly cut-leaved Japanese *Maples* and the bold white blooms of small plants of *Magnolia speciosa*. Among the *Clematises* the following were among the most attractive sorts: *Duchess of Edinburgh*, *Lucie Lemoine*, *Mrs. Bush*, *Miss Bateman*, *The Queen*, *Fair Rosamond*, *Lord Lonsborough*, *George Burbridge*, *Mrs. S. C. Baker*, *Duke of Buccleuch*, *Lord Mayo*, *Vesta*, *Stella*, *Lord Derby*, *The Gem*; all excellent sorts.

To Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, was awarded a large silver medal for an extensive group of fine foliated and flowering plants consisting of *Orchids*, *Azaleas*, *Australian plants*, &c., finely flowered plants of *Cattleya Mossiae*, *Dendrobium Dalmatianum*, *Oncidium Marshallianum*, *Odontoglossum vexillarium* being particularly attractive. The General Horticultural Company contributed a large group, consisting chiefly of fine foliated plants, *Bromeliads*, and *Gloxinias*. For a tasteful arrangement of flowering and fine foliated plants, Messrs. Cutbush & Son, Highgate, were awarded a silver medal. It is a group arranged for effect, and consisted of semicircular groups of *Azaleas* and fine foliated plants, while in the bends of the semicircles were isolated groups of *Narcissi* and *Lily of the Valley*, the whole forming a harmonious arrangement though perhaps a little too formal as regards the edges.

A large and representative collection of cut blooms of *Narcissi* was exhibited by Messrs. Barr & Sugden, to whom were awarded a large bronze medal. This collection attracted considerable attention on account of the great diversity of form, colour, and size there exists now in this favourite flower. Cut flowers of *Cilanthus Dampieri* were exhibited by Messrs. Carter & Co., High Holborn; their gorgeous colours were highly attractive.

LATE NOTES AND QUESTIONS.

Polyanthus Flowers.—*Thos. Plunkett.*—The flowers sent show a variety between the old Jack-in-the-Green and *Polyanthus duplex*. They have a large green calyx below the pip; the latter has another coloured pip below the proper one. Yours shows the green calyx in process of transformation into a coloured flower, and, no doubt, if seed were saved and sown, some true duplex kinds would be the result. It is a pretty border flower, but has no other value.—A. D.

Oleanders Shedding their Flower Buds.—My plants were cut back fully a year ago, and thereafter put into a Vinery at work. After they started into fresh growth I had them repotted, and when well established set them outside, where they were well exposed to the sun. Towards autumn several showed flower, but not one opened, and I find that this spring they also advance to a certain stage of development and then drop. The plants look healthy, the white roots running along the surface. I did not pot them this year. I shall be glad if any one can assist me as to the cause of my failure.—ENQUIRER.

Cucumbers Failing.—I have three lights of Cucumbers, consisting of three varieties; they have grown well and show plenty of fruit, but I cannot get one to swell off, though I have kept up a fair heat by means of linings of hot manure. The loam they grow in is poor, but I added manure. I am much perplexed, never having failed before with Cucumbers, and hints on the subject will be gratefully accepted.—A. G.

R. G.—The shrivelled *Dendrobium* flowers are probably due to excessive drought at some stage of the development of the bud.

Names of Plants.—*T. S.*—1, *Corydalis nobilis*; 2, *Dicentra eximia*; 3, *Polygala Dalmatica*; 4, *Coronilla glauca*; 5, *Chorozema ilicifolium*. The Christmas Rose is the popular name of the *Helleborus niger*, but it is likewise applied to the other species.—*S. G. G.*—1, *Salvia Camertonii*; 2, *Genista racemosa*; 3, *Magnolia conspicua*.—*R. A. G.*—*Amelanchier canadensis*, *Alnus incisa*; the specimens arrived withered, and no numbers were attached.—*M.*—*Orange Phoenix* *Daffodil*, *Viola gracilis*.—*W. R.*—*Allium triquetrum*.—*S. T.*—1, *Scilla italica*; 2, *S. amena*; 3, *S. sibirica*; 4, *S. hyacinthoides*.—*D.*—*Eranthemum tuberculatum*.—*Devon*.—1, *Oncidium serotum*; 2, *Odontoglossum Cervantesii*.—*Sub.*—1, *Choisya ternata*; 2, *Aralia Veitchii*.—*F. R. S.*—*Oncidium pulvinatum*.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

EDITOR'S TABLE.

From Mr. Ewbank we have a delightful batch from Ryde, the richest of the year as yet, with many old friends, strange faces, and some invalids made sound and even beautiful. Among other Irises, the lemon-coloured form of the Crimean Iris ought to be grown in bold patches by itself. With the white and beautiful Trillium we have a dark one with such a detestable odour that its name is better not published; there are certainly some flowers which ought to be left out of gardens altogether. The delicate Virginian Lungwort, which requires to be seen in some shady, moist corner, for it does not care much for travelling; the Cyclamen-like Narcissus (*N. triandrus*), very strong and handsome, some having five blooms; the Californian Dog's-tooth Violet, like a little pale Lily; the single Kerria, like a small single Rose; the large Asphodelus, which seems early; two types of the scarlet *Anemone fulgens*, both bright scarlet, without any ring or spot, one clear 4 in. across; beautiful and variously-coloured varieties of Siebold's Primroses, quite hardy there, as it is in many other places. The Japan Celandine, with pretty golden buds; the Dahurian Lungwort, the spotted golden Boragewort (*Arnebia echioides*), the noble Fumitory (*Corydalis nobilis*), bright American Cowslips, alpine Daphnes, the Indian Daphne (grown in the open), the pretty British Creeping Gromwell (*Lithospermum purpureo-cœruleum*), pretty alpine Saxifrages, Camellias grown in the open air, and alpine Rhododendrons. The above, among many others more frequent in our own district, and which we need not, therefore, particularise. A collection from which so many scores can be gathered so early in the year must have a good influence on the whole neighbourhood.

A most useful and instructive series comes from Belvoir, containing improved forms of some of our boldest and best hardy spring flowers and others, grown as well as they deserve to be, and may be in every country place enjoying similar advantages. Mr. Ingram's love for spring flowers, and well-known success in their culture, is shown by a yearly increase in his collections and by their increasing beauty. The Narcissi he sends are superb, the old double "Butter and Eggs" being well over 3 in. across, and the Maximus types are grown as one seldom sees them; also the graceful Tortuosus and Leeds's pale hybrids, no fairer or showier flowers from any hothouse than these. Three good forms of the spring Orob, a precious plant which never fails. Two of these are known by the names *O. cyaneus* and *O. flaccidus*, the last having the more finely cut foliage. These pretty Pea flowers may be used with effect in various ways in gardens. A brilliant purple-crimson variety of the common Honesty (*Lunaria biennis*) we hope may be fixed. The Belvoir Wallflower is a fine orange yellow with a bold free flower. The noble Fumitory (*Corydalis nobilis*) is very handsome as grown at Belvoir, curious and beautiful in flower, and good in foliage too.

The quaint and graceful Bellwort of the American woods (*Uvularia*) is not a striking plant out-of-doors, but interesting in a cut state, the drooping heads leaning over the sides of a dish, the soft, yellow flowers half wrapped in the bright green and elegant leaves. It is a plant to naturalise in a peaty or leafy place, in wood copse or shrubbery, or among American plants not too thickly crowded. Plant as a spreading group, or colony having a home of its own. With this, and drooping from the edge of a low basin in the same way, the varieties of the Snake's-head are very beautiful.

How fresh and delightful a good bunch of the early Forget-me-not (*M. dissitiflora*) is on arriving in this dusty London, where both plants and men get quickly tarnished! A variety of the Crimean Iris called bicolor is a very different plant, because it gives an effect totally different from the common purple kind, the outer divisions of the flower falls purple, with white edges, and the standards white. It deserves to be increased. Finally, there is the white variety of the creeping Forget-me-not (*Omphalodes*

verna), and a good deep rose form of the common broad-leaved Saxifrage, a lilac-pink Aubrietia, a little alpine Wallflower-like plant (*Erysimum pulchellum*), and a well-grown bunch of pale blue Anemone.

Most welcome bunches of the Apennine Anemone and the double and reddish Wood Anemones come from Mr. Otley, at Daylesford, described as covering "several acres in extent on the hill." The blue Anemone is very fresh and lovely; its flowers $2\frac{1}{2}$ in. in diameter. This precious blue Anemone is frequently badly grown—that is, it is placed where it does not really thrive, though nothing can kill it. It will grow anywhere where the Wood Anemone grows, and once established, whether it is grown afterwards in the garden, or not, is a matter of no consequence. In any country place with a variety of surface, one knowing and caring for the plants of the northern world would soon be independent of any plan or system for a spring garden. A sight of this hill at Daylesford must now be better than any "mixed border." The flowers were so large that some in our office who know hardy flowers well did not recognise the plant.

From Mr. Stevens comes a fine spreading panicle-like branch of Maule's Japan Pear, the finest flowering shrub introduced to this country during the past dozen years. Here is really a hardy brilliant thing worth much attention. Mr. Stevens has a hedge of it from which the specimens mentioned were taken, but what its stature or form is, is not well enough known to us yet to note exactly the best thing to do as regards position and surroundings for it; but a mistake could not be made in planting a few specimens or a group of it, so that it could grow well and show its character. Captain Thomas says that with him it is dull in colour, but the above is a fair description of the bush as grown at Byfleet. Also from Mr. Stevens some of the varieties of the Japan Pear (*Pyrus japonica*), often alluded to in these pages; they are most desirable for cutting, apart from their use in the open air.

The new forms of Grape Hyacinth—little spikes of beautiful beaded blue or purple, will prove valuable plants for spring, particularly for cutting; they are now, or some of them, in their glory. So, too, are the Stars of Bethlehem (*Ornithogalum*), *O. nutans*, with its curious green and white membranous flower, being desirable in all ways. The Summer Snowflakes have come in abundance, and are pretty for cutting. The variegated form of the single Kerria is a plant of peculiar beauty. Few variegated plants have much importance for cutting, but this, with its delicate and constant variegation, and little wreaths of single, yellow, star-like flowers, is most elegant. To enjoy the plant it must be freely grown or planted out in a cool house. I should be grateful to any one who would send me a good flowering specimen of the single Kerria for the artist. It is a handsomer plant than the double one so well known in our gardens.

Now is the crown of the season for the early white-flowering trees, most welcome in any shape, most effective well placed in the home landscape. Around London during the present week in many quarters are seas of bloom of the common Pear and also Plums; while in the gardens with ornamental trees we have the double Cherry, some early forms of *Pyrus* allied to the common Apple, such as *P. baccata* and the forms of *Pyrus salicifolia*; not less valuable the best form of what is called the Snowy Mespilus. The young trees of this do not always produce a noticeable effect, but old ones well placed and full of flower are often very beautiful in the garden landscape. Mr. Stevens brings me, along with some of these, a very pretty white Spiræa (*Spiræa chamædrifolia*), which is early, and for that reason precious. Also the Bird Cherry, which is as good as any of the white-flowering, low trees with its strings of pearls and blossoms. Low tree, by the way, is scarcely the word when fairly treated, because it really forms a fine tree, as in that valley at Longleat, where trees of the Bird Cherry are almost as large as forest trees. At Syon a semi-double white Peach was very effective and beautiful during the week. These double Peaches are most valuable for gardens, at least in the south. Even the weak, open way they sometimes grow, bearing many blossoms on a naked, loosely-knit frame, gives them a Japanese kind of look which distinguishes them from all other spring-flowering trees.

Speaking of white flowering early trees, the old Snowdrop tree

at Syon is dead at last—a quaint and interesting specimen of one of the loveliest trees—probably the most remarkable tree of it in England. The care with which it was cherished, and the careful way in which the long picturesque side branch was supported were pleasant to notice. It has perished of sheer old age at last. A loss of this kind is more easily replaced than that of a good man, and every one who cares about beautiful flowering trees, and has a place in which to do them justice, should plant a Snowdrop tree next autumn in memory of this old tree, which we greatly regret never having seen in flower. The beautiful Pearl bush (*Exochorda*, or *Spiræa grandiflora*) is in bloom on walls, but it does not look nearly so pretty as when grown as a bush, such as on light soils.

From Mr. James Smith, of Darley Dale, a fine basket of hardy Heaths, showing their state in spring, with a specimen such as is rarely seen of *Menziesia empetriformis*, a brilliant little alpine bush, not often grown well, an equally fine one of *Andromeda tetragona*, and various forms of the Mediterranean Heath. In Mr. Smith's nurseries these hardy Heaths seem to be peculiarly well grown.

From Eastcot, Mr. Kingsmill sends a bunch of wild flowers, including the Snake's-head (*Fritillaria*) and its white variety; fair flowers, which, if they grow in Middlesex in pasture and meadow Grass, should be easy to establish in like positions elsewhere. The various dull-coloured *Fritillaries* now in our gardens are not quite so pretty in colour as the common kind, and if they are to remain permanently with us, a little wild gardening would be the right thing in their case. They are very interesting in the cut stage. Also the wild yellow Tulip (*Tulipa sylvestris*), a plant few of us have a chance of seeing as a native, and which must be very handsome in grassy places.

The first beautiful Rocky Mountain Columbine (*Aquilegia cœrulea*) of the year comes from Mr. Kingsmill's garden at Eastcot, a flower to which no description can do justice. With it the green Columbine (*A. viridiflora*). Green flowers have not hitherto had much attention, some of them being monstrosities only, but this deserves a better fate, the flower having a variety of delicate Sage-greens, all pleasing in tone. It has a delicate scent, too, something like that of an Indian *Daphne*, but fainter. Such a flower in an open border would be passed by as a worthless weed by an ordinary observer; but in a light glass on a table it becomes a very interesting object. This flower might, indeed, be adopted by the most æsthetic young ladies of the period as their badge—the flower of their belief. The green-fringed Wood Anemone (*A. nemorosa bracteata*) is another most singular and elegant flower for a glass; out-of-doors it has no chance among more showy kinds, but it will grow in any obscure nook. With these came the Pearl-bush, before mentioned, and a glorious bunch of Pansies, including some almost black. Of all our open air flowers these are the most precious, from their beauty, variety, and vigour in almost all soils and situations.

From Mr. Amos Perry, now in the south of France, comes a bright curiosity—a cluster of little gold yellow fingers in crimson mittens—a parasitic plant (*Cytinus Hypocistis*), growing on the roots of *Cistus monspeliensis* and probably allied species. If so pretty after its transit, it must be much more so on its native bush.

From Glasnevin come a beautiful *Fritillary* (*F. contorta*) long in blossom; the Woolly Broom, hardy against a wall, and very early and frequently with two flowers on a stalk; the variegated wood Forget-me-not, which will interest many, but, like various hybrids and variegated plants, of doubtful value; a graceful purple *Trichonema speciosa*, pretty in the shape of good tufts in the morning sun, and the brilliant American Cowslip (*Dodecatheon resplendens*); a new star *Magnolia* (*M. stellata*), which flowered in a very small state; also double and single *Periwinkles* which do pretty well at Glasnevin, and the Californian Bear Berry (*Arctostaphylos californicus*), like our own, very pretty.

From Messrs. Dickson, Waterloo Place, Edinburgh, we have *Forsythia Fortunei* full of flower from the open border, where it has been in bloom for a fortnight; it also flowered outside in

February. It is certainly one of the best shrubby border plants we have for early spring, and perfectly hardy.

From Miss Owen, of Gorey, a pretty Primrose, supposed to be a hybrid between *P. Sieboldi* and *P. cortusoides*, bright, but rather too small; and, if a hybrid, a step in the wrong direction, inasmuch as *cortusoides* is a poor plant; also the giant *Allium paradoxum*, a curiosity only; and the little *Tulipa pulchella*, one of the least attractive of the family.

SPRING FLOWERS AT RYDE.

As you invite contributions of flowers I have just now sent off a boxful of them to you. I am sure your editorial table ought never to be bare. The most striking by far of all spring flowers in my garden has been *Anemone grandiflora fulgens*. I owe this plant to the kindness of Mr. Nelson, of Aldborough, and he did me a very good turn when he made me a present of it. You will see that the flower I send is more than 3 in. in diameter, and when three or four of them throw back their petals in a careless, abandoned sort of way to the mid-day sun the effect is most striking. Colour could not possibly be more gorgeous. These *Anemones* make you stand still and gaze at them; but should anybody say that this flower is too loud and demonstrative, though I hold that such an idea would be absurd, I can give him one to his mind. *Omphalodes Luciliæ* has merit of an exactly opposite sort. One of your correspondents called it some time ago "the type of virgin modesty," and he could not have used a better expression. It is soft and tender to the last degree, and while the *Anemone* startles and surprises you, this gently captivates you. I do not know of any flower where the tints are so delicately blended together. The most beautiful porcelain is nothing to it. The blue and the white run into each other in a most exquisite manner. For some time I was puzzled by *Omphalodes Luciliæ*, for I valued it so much. I took very great care of it and coddled it anxiously, but I found out my mistake after a while, and I now see that it only requires to be put into the ground and it will thrive anywhere in my garden. The truth is that it cannot bear stifling of any kind, but it is quite indifferent to cold, and even to rain. Any soil seems to suit it here, though it likes peat the best. It is, in reality, so very easy to manage that I have ceased to put it on my rockwork at all; it does quite well on the level. But this is by no means a common experience. Mr. Ware tells me that he cannot manage this plant at Tottenham at all. I think it must love the Isle of Wight, and it is beyond all question that it is greatly loved here. *Pulmonaria dahurica* is a very fit and worthy companion, but it differs largely in its wants from the other. Rain which is at all in excess is destruction to it. I can only carry it safely through the winter by putting a pane of glass over its head, and by thus throwing the water completely away from it. It is a bright and dainty little thing, and always reminds me of old Wheeler, of Warminster, from whom alone I have ever been able to procure it. I have not been able to send you a blossom of *Polemonium confertum*, for I want to keep it for seed, but it is flowering most beautifully just now, and I have made its acquaintance this year for the first time. It deserves all the commendation which you bestowed upon it some time ago. I once heard it called "miffy" at Kew, and it was said to go off in a disappointing manner. But that all depends, I am sure, on the treatment which it receives. I am thankful to say it is much more amenable to reason with me than I thought I should find it. It must grow in light friable soil, and then it seems to be satisfied. If the roots are at all clogged by the hard nature of the ground it will very soon perish, but if the soil is open and free, and it can run about *ad libitum* all over the place there need be no fear for it. At least I have found it to be so, and this last winter was a good test. *Arnebia echioides*, through the great kindness of Herr Max Leichtlin, has gladdened my eyes within the last few days. It is very interesting indeed, and I send you a specimen of it. *Viola pedata bicolor* might have gone to you last week, and *Viola Sheltoni* as well. The first of these is a gem of gems, and the other is also very pretty. They seem to enjoy almost pure sand. I hope never to be without them again. *Daphne indica rubra* has stood this dreadful winter without suffering at all, and what pleases me more than anything else is that *Mandevilla suaveolens* is breaking all up the main stem to the height of 13 ft. or 14 ft. from the ground. This magnificent shrub was quite unprotected

here, and we had 18° of frost in the island (1° more than the greatest traditional number), so it cannot be so tender as once was imagined. I think I have seen it called a stove shrub; it cannot surely be that. *Lagerstroemia indica* has just managed to pull through last January and February, and *Clematis indivisa lobata* is cut down to the ground, but I see to-day that a strong shoot is coming up from below. *Poinciana Gillesi* has lived with me over the winter in three places in the open ground, and *Lapageria rosea* is just the same as if nothing had happened to it. But I must stay my hand now, I am sure. You will notice, I hope, in my box *Anemone fulgens purpurea*. It is a great beauty, and the purple colour is very rich and glowing to the eye. *Euphorbia pilosa* major is a grand thing for late spring and early summer. I only wish I could propagate it successfully. *Claytonia virginica* is very sweet indeed, and it loves a quiet nook in deep leaf-mould or peat. *Erythronium grandiflorum* ought to find a place in every collection, and you see that *Gentiana verna* is still very happy with me. But, in truth, there is no end to one's enjoyment of this happy month of May, at any rate in this salubrious isle. I could treble the list I have given to you, but there is no credit due here to the gardener; Nature does everything. The following list refers to plants now in flower in the open ground:—

Camellia, double white	Choisya ternata, nearly out	Ranunculus aconitifolius amplexicaulis
Magnolia Lenné	Pyrus Malus floribunda	Erythronium grandiflorum
Dodecatheon integrifolium splendens	Trillium grandiflorum	Cytisus Ardoini lupinus
Primula cortusoides a-mœna	Prunus sinensis flore roseo pleno	Stylophorum diphyllum
Daphne indica rubra	Gentiana verna acaulis	Rubus arcticus
Helleborus argutifolius	Lithospermum purpureo-cœruleum	Bryanthus erectus
Berberis stenophylla Darwini	Andromeda floribunda	Veronica rotundifolia
Lonicera Ledebouri	Iris stylosa lutea	Azalea amœna
Polemonium cœruleum confertum	obliensis nudicaulis	Primula rosea
Dielytra spectabilis	longipetala (I think not sent, but out to-day)	Munroi
Pulmonaria dahurica virginica	Bongardia Rauwolfi	Arabis blepharophylla superba
Narcissus triandrus t. albus intermedius	Utricularia vesicaria	Atragene austriaca alba
Trollius Portunei fl.-pl., very good	Sparaxis	Muscari Szovitzianum
Leucocjum æstivum	Asphodelus esiferus	Clematis cirrhosa angustifolia
Tulipa turcica elegans	Corydalis nobilis bulbosa	Pyrus japonica (various)
Clusiana sylvestris	Orob. azureus	Saxifraga virginica coriophylla
Orphanides	Euphorbia pilosa major	Mawœana
Daphne Cneorum	Arnebia echinoides	Wallacei &c.
Erica codonodes carnea	Auriculas	Xanthoceras sorbifolia
Single Kerria	Claytonia virginiana	Waldsteinia trifoliata
Lamium Orvala	Anemone Pulsatilla Halleri	Ornithogalum
Fritillaria tristis pyrenaica	Robinsoniana fulgens	Bellidastrom Mitchellii
lutea alba	f. grandiflora f. purpurea nemorosa major &c.	Viola pedata bicolor
Adonis vernalis	Ranunculus gramineus	Scilla nutans alba
		Cardamine trifoliata fl.-pl.
		Blue Polyanthus
		Draba ciliata
		and other sorts
		Androsace coronopifolia
		Allium Clusianum

H. EW BANK.

NOTES OF THE WEEK.

New and Rare Plants.—*Iris iberica insignis*, brought out by the New Plant & Bulb Company, is a very desirable variety, the colours of which are well defined and the flowers very large. Close by, *I. Saari* is very showy just now; it is of the iberica style, the flowers are as large as those of *I. susiana*, the standards are veined with violet, the falls pale olive-brown tipped and netted with dark chocolate—colours which, with a velvety black, elongated, hairy blotch on the falls, render this a striking flower. Another new species from Central Asia is entirely coffee brown splashed with violet and purple, and as regards form and colour it is all that can be desired. *Saxifraga virginicensis* fl.-pl. forms quite a pyramidal bouquet of white flowers, which are even more double than those of *Spiræa prunifolia* fl.-pl. *Lychnis nivalis* forms a low tuft of bright green leafage, and the flowers, only a few inches in height, are as large as a shilling and bright deep rose. *Fritillaria pallidiflora* is very effective, and there is a first-rate variety the bells of which are as large as those of *F. imperialis*, and of a good sulphur colour, slightly tipped with brown. From five to six bells are on a plant only 1 ft. in height. *Ixiolirion Ledebouri*, of which I possess perhaps the only plant in cultivation, is far better as regards flower than *I. tataricum* or *montanum*; the colour of *Ledebouri* is deeper, and the flowers are of better shape and substance. *Haberlea rhodopensis robusta* is a fine alpine, which blooms more profusely than the type, and its flowers are also larger and better in colour. *Trillium grandiflorum majus* is a very desirable plant, the snow-white numerous flowers of

which are twice as large as those of the typical form. *Prunus prostrata* is a low prostrate shrub which produces abundance of tiny rose buds and flowers, and is well fitted for ornamenting the head of a rockery. To watch the unfolding of the singular warty leaves of *Rheum Ribes*, which are entire, nearly round, and 2 ft. through, is quite a treat.—MAX LEICHTLIN, *Baden-Baden*.

Erythronium purpureum.—Under this name there are some plants now in flower in the Hale Farm Nurseries, Tottenham, which are quite distinct from any Dog's-tooth Violet we have hitherto seen. It most resembles *E. giganteum* of Lindley, and most probably it is the *E. Smithi* of Hooker, which is, like *E. giganteum*, classed by the American botanists as varieties of *E. grandiflorum*, though on what grounds it is hard to say, as both the plants are so dissimilar in general appearance as well as in minute character. Mr. Ware's plant bears a pair of rather large leaves undulated at the edges and mottled on the upper surfaces with a very deep green and pale green; the flower-stem rising erect from between the leaves is about 8 in. in height, sharply recurved at the upper part, and bears a solitary flower about 2 in. across, having narrow petals of a pale rose colour and an orange ring at the inner bases of the flower. It is apparently a later flowering kind than either *E. giganteum* or *E. grandiflorum*, and on this account it may be considered an acquisition. It grows under similar conditions to the others, which is a border of rich soil sheltered between hedges of evergreens, which greatly protect the flowers.

Spring-flowering Plants.—The following were exhibited at Manchester the other day by Mr. Brockbank, of Didsbury. They were in a 4-ft. wicker basket, the spaces between them being filled with Moss and clumps of Grape Hyacinths. They consisted of *Leucojum vernum*, *Polygonatum multiflorum*, *Primula cashmeriana*, *P. verticillata*, *P. glaucescens*, *P. hybrida*, *P. involucrata*, and *P. viscosa*, *Androsace Lageri* and *A. coronopifolia*, *Polygala Chamæbuxus purpurea*, *Narcissus Emperor*, *N. Horsfieldi*, *N. minor*, and *N. Bulbodium*, *Fritillaria Moggridgei*, *Cypripedium pubescens*, *Anemone apennina*, *Orob. vernus*, *Doronicum caucasicum*, *Trillium sessile*, and *Cardamine chelidonia*.

Hardy Flowers at Tottenham.—The Hale Farm Nursery is now beginning to wear a gay aspect; the spring flowers proper are on the wane, but are closely followed by the early summer kinds. Amongst the most noteworthy are *Lychnis dioica rubra* fl.-pl., a long name for a very pretty plant, a strong grower and conspicuous from all parts of the nursery; *Lupinus nootkatensis*, the earliest of the Lupines, and very desirable; *Phlox setacea* in variety, *Model*, *Vivid*, and *grandiflora* being the earliest; *Corydalis nobilis*, a noble Fumitory which should occupy a place in every mixed border; *Pulmonaria virginica*, an extremely fine plant, especially suitable for shady peat borders or margins of shrubberies; *Trollius japonicus* fl.-pl., a golden yellow semi-double kind, the earliest as well as the finest; *Euphorbia pilosa*, with yellow flower-heads, and the only species worth growing; *Iris pumila* in variety, *pallida* and *atro-violacea* being the best; *Adonis vernalis*, a handsome yellow-flowered plant with feathery foliage; *Saxifraga Wallacei*, the finest of all the Moss^h section; *Aquilegia canadensis*, with red flowers and the earliest to flower here; *Trillium grandiflorum*, several forms differing in their degrees of earliness, but all extremely desirable.

Agapetes buxifolia.—For some reason or other this showy Ericaceous plant has not come into general cultivation, although few of its congeners are more attractive. It is a dwarf shrub, furnished with small leaves and a profusion of bright red tubular flowers about an inch long, produced chiefly from the bark of the older stems and branches. There are some plants of it in the temperate house at Kew which have been attractive for a long time, and will probably continue in flower for several weeks yet. It is a Himalayan plant and succeeds well in any ordinary greenhouse.

Aster (Eurybia) argophyllus.—When well flowered, this Australian shrub is highly ornamental. There is now a fine specimen of it at Pendell Court, Bletchingley, planted against the back wall of a lean-to Vinery, profusely laden with large dense clusters of small starry, creamy white flowers. The leaves are covered with a sort of mealy down, which gives them a silvery appearance, and they moreover possess a strong Musk-like perfume, for which character alone the plant is worth cultivating. It thrives in the open air against a wall in some districts, but it is never so satisfactory as in a cool house.

Arabis aubrietoides.—This pretty alpine plant resembles the ordinary purple *Aubretia* in size and habit, but its flowers are of a pleasing delicate pink, borne in great profusion. There is a good plant of it in flower just now on the rockwork at Kew. It is an excellent plant for a position where its trailing branches can hang over the ledge of a boulder. [It has been distributed recently by Messrs. Froebel, of Zurich,

Rhododendron Daviesi.—At the spring flower show held on Tuesday last at the Manchester Town Hall, Mr. Davies, Brook Lane Nursery, Ormskirk, was awarded a first-class certificate for this *Rhododendron*. It is distinct in character, and the colour, a bright orange-scarlet, new amongst *Rhododendrons*. The habit of the plant is handsome and the leaves are of a fair size and of a dark glossy green, forming a pleasing contrast with the glowing colour of the flowers. It is a seedling from *Rhododendron retusum*, crossed with *Rhododendron javanicum*.

Speirantha convallarioides.—This is an interesting new Liliaceous plant. In habit of growth it strikingly resembles the Lily of the Valley, a circumstance which suggested to Mr. Baker the specific name. The flowers are small, star-shaped, and pure white, produced in a rather dense raceme of from one to two dozen. It will probably prove a valuable plant for cutting purposes, as it is a free grower and flowerer. It is a native of China, whence it has been sent to the Royal Gardens, Kew, in which it is now in flower in one of the cool compartments of the T range.

Varieties of Snake's-head.—A large bed of *Fritillaria Meleagris* in the Hale Farm Nurseries, Tottenham, is now in perfection. It contains several interesting varieties, amongst which there is one pure white, a handsome kind which ought to be in every mixed border; also the ordinary form, and one darker still in colour. Then there are intermediate forms named *Modeste* and *Curiosity*, which are white, slightly chequered with dull purple. The effect of this bulbous plant in such large masses is so different from that of small patches that one sees, that everyone should endeavour to encourage its growth in that way.

Arthropodium cirrhatum.—This New Zealand plant is one of the finest ornaments to the Cactus house at Kew just now, being profusely furnished with handsome white flowers, produced in broad loose clusters 18 in. high. The flowers are nearly 1 in. across, pure white, except the stamens, which are furnished with tufts of bright orange down. The foliage is Iris-like, and is retained on the plant throughout the year. It is an extremely desirable greenhouse plant of simple culture, and it is rather remarkable that such a fine plant should not have found its way into general cultivation.

Spiræas.—Many of these are now coming finely into flower, and amongst them that graceful little shrub *Thunbergi* is just now studied with its white Hawthorn-like blossoms. Others are *S. acutifolia* and *thalictroides*, in which the flowers are arranged along the whole length of the shoots, and *S. confusa*, in which they form dense terminal clusters, white, slightly tinged with green. The beautiful little white rosettes of *S. prunifolia* also attract attention, while that most singular *Spiræa* of all, *S. levigata*, which when out of bloom might easily be mistaken for a *Daphne*, is now opening its white flowers with their conspicuous crimson stamens. Although not in bloom, the bright golden foliage of *S. opulifolia aurea* is so showy as to well deserve a passing notice.

Chinese Barberry (*Berberis chinensis*).—Under this name there is a fine mass of a remarkably handsome species of *Berberis* in flower in the dell near the Flag Staff at Kew. It is of comparatively dwarf habit, being only about 18 in. high, and, though deciduous, is already covered with its neat-looking foliage, which is of a pleasing shade of light green. The disposition of the branches is most graceful, and from the underside of each the flowers hang in great profusion; inside, they are of a greenish-sulphur colour; outside, brownish-crimson. In autumn the leaves assume a beautiful red colour. This *Berberis* was, I believe, introduced through the St. Petersburg Botanic Garden as *Berberis Thunbergi*, a name under which it is most commonly known.—H. P.

Choice Hardy Flowers.—*Stylophorum ohiotense* is a fine showy plant, with much divided, glaucous, woolly foliage, and numerous orange-yellow flowers, rather larger than those of the common Buttercup. The pretty *Viola biflora*, with its scentless yellow blossoms, is both distinct and desirable. *V. calcarata alba* is a charming companion for the typical form; the flowers are quite as large, pure white, and produced quite as freely. These are two first-rate plants for semi-shady parts of the rockery. *Astragalus adsurgens*, now in flower, is, we consider, one of the handsomest of all the *Astragali*. The above are in flower in Mr. Riches' nursery at Tooting.

Canadian Rhodora (*R. canadensis*).—It is somewhat remarkable that such a handsome shrub as this should be so seldom seen in gardens. It is of low bushy growth like that of the Ghent Azaleas, but the flowers are smaller and of a rich, rosy-purple. Its chief merit is its early flowering, long before the Azaleas open their blossoms. It is a native of the damp woods and swamps of the United States; it thrives well in cultivation in ordinary peat beds amongst other American plants. Some well-flowered bushes of it are now very attractive in the old American garden at Kew.

Lachenalia pallida.—This is one of the most delicately beautiful of all the cultivated species; indeed, we know of no other plant which has the flowers of such a singular hue. Unlike the commoner kinds, they are arranged almost erect on the stout stalks are semi-transparent, and of a peculiar porcelain blue, deepening to a rich blue. The stems are also beautifully mottled, which, with the foliage, render the plant very attractive. There are two or three forms of it in flower at Kew, but our remarks refer to the best variety. There is a yellow-tinted flowered kind named *sulphurea*.

Rubus arcticus.—This is quite the gem among Brambles, and where it can be induced to thrive away from its high mountain home, it is one of the prettiest plants for a rock garden. It is a low trailing plant, with compound leaves, and deep rosy-pink flowers about the size of a sixpence. In a cool, shady peat border it thrives admirably, and it may be grown successfully in pots, with a little care. We have seen it in several nurseries lately in flower, and a variety of it named *fecundus* we saw in flower in masses the other day in Mr. Bull's nursery, Chelsea.

Myosotis dissitiflora splendens.—The ordinary form of this Forget-me-not is beautiful enough, but this variety, which is now in full flower on the rockwork at Kew, much surpasses it: indeed, it is the finest Forget-me-not we have yet seen, as the flowers are larger, and the colour clearer and brighter than any other.

Alonsoa Mutisi.—Most of the *Alonsoas* have bright scarlet flowers, but the colour of this one is of a delicate, fleshy tint, inclined to pink. The leaves, too, are different in colour from those of other kinds, being a dark lurid purple. In height and habit it resembles *A. incisa*. It is flowering at Pendell Court, Bletchingley.

Heaths and Anemones Mixed.—A pretty effect may be made with *Erica carnea* and the white wood *Anemone*. I saw a border of the above in a herbaceous bed lately, and the contrast of the graceful foliage and flowers of the *Anemone*, which was planted in clumps among the Heath, was very striking.—A. B.

PLANTING OUT AZALEAS IN SUMMER.

WHEN one takes into consideration the many great advantages to be derived from planting out Azaleas in a bed of suitable compost during the summer months, instead of retaining them during that period in pots, one may reasonably express surprise that this system of culture should not have been generally adopted in this country. The Belgian growers, more wise in this matter than their English brethren, have long practised this method of growing the Azalea, and the fine little specimens, clothed with handsome foliage broad and glossy, and well set with buds, that are annually imported in such large numbers to this country, testify to the advantages to be obtained by according to the roots an almost unlimited amount of suitable nourishment throughout the growing period. It is certainly pleasant and instructive to walk through a Belgian trade establishment where Azaleas are made a speciality of, when they are in their summer quarters. The best time to see them, and when the benefits of the system are most observable, is just when the little specimens have attained their maximum of leaf development, and when they are about to concentrate their energies upon the formation of those glorious buds which, as a rule, are produced in such numbers, and, owing to the large amount of food at the disposal of the roots, attain such perfection of development as to render these little plants, when in bloom, of the highest value for decorative purposes. However well one may grow the Azalea in pots, the foliage will never attain such fine proportions, and growth will not be so freely made as when planting out is resorted to. The Belgian growers plant out in the open air, hardening off the young plants in the first place by a process of gradual exposure, and then allowing them to experience the full force of the sun's power throughout the summer. An open, but sheltered situation is chosen, and beds are made up (some 4 ft. to 6 ft. across) of good soil. This in most cases consists of leaf-mould in a pure state, but it is not the kind of leaf soil that is commonly employed in English gardens. It is a natural deposit, the accumulation of ages, and may be used directly that it is brought from the forest without any preparation whatever. Such soil as this is but rarely procurable in England. Once, and once only has it been my good fortune to obtain such, and I found that it needed scarcely any sweetening process to fit it for the reception of even the most tender roots. Taking all things into consideration, we should say that the best mixture would consist of good turfy loam, the best fibrous peat and leaf-mould in about equal proportions, adding to it a good dash of coarse silver sand. In such a compost the plants would find all necessary to build up a perfect specimen, and, provided due care was taken to ensure that its component parts were of the best quality, growth could not fail to be at once free and vigorous.

J. C.

THE FLOWER GARDEN.

FREESIAS.

THE Freesia represented in the accompanying woodcut has already

the good old favourite *Schizostylis coccinea*, all of which are closely related to the *Freesias*, a glance at the annexed illustration will be sufficient to convince them of the value of *Freesias* as winter-flowering plants. Unfortunately, with the exception of *Schizos-*



Freesia refracta alba.

been noticed in THE GARDEN as having flowered in the Royal Gardens, Kew, where it was much admired. To those acquainted with the beauty and value of the *Ixias*, *Tritonias*, *Babianas*, and

tylis, the plants just named are known to but few, a fact to be deplored, considering the ease with which they may be cultivated. The Cape Flora contains a great number of *Irids* and other bulbous

plants equally as beautiful as any of those already mentioned, and which, thirty or forty years ago, were great favourites in this country, but which, from some cause or other, have been allowed to drop out of cultivation. The case of the *Freesias* may be taken as an instance of this, for it is a fact that they were great favourites as early as 1815, and remained so for some years; yet, when seen in flower in February last they were looked upon by most people as new introductions. According to Mr. Baker, whose labours on Irids have rendered their study comparatively easy, the genus *Freesia* has been included in *Gladiolus* and *Tritonia*, as well as having had a goodly number of specific names. These are all now reduced to at most two species, viz., *Freesia refracta* and *F. Leichtlini*. The former varies considerably, judging from the earlier illustrations of it, which, if correct, would seem to include *F. Leichtlini*. *F. refracta* has pale yellow flowers, sometimes with a greenish, sometimes a purplish tint, while its variety *alba* has flowers of the purest white, with two orange-yellow blotches on the lower segments. Sometimes these blotches are absent. *F. Leichtlini* is said to be yellow, though I saw a plant in flower a few weeks ago which was said to be *Leichtlini*, but which was identical with *F. refracta alba*.

Freesias may be cultivated out-of-doors on a sheltered border in the south of England, but they are much more beautiful when grown in pots in a cool frame and brought into the conservatory to flower. Thus managed, they may be had in blossom as early as the middle of January. They last in bloom for three or four weeks, after which the plants should be gradually ripened and dried off. A dry place out-of-doors should be given them in summer. In autumn they may be shaken out of the old soil and repotted into a compost of loam, peat, and a little manure. Plunge the pots in ashes in a cool, light frame, and as the plants grow a liberal supply of water should be given them. Care should be taken not to allow cold currents of air to pass through the frame, or injury to the young leaves will be the result. I shall be glad to hear from anyone who has grown both species whether *F. Leichtlini* is really specifically distinct from *F. refracta*.

Z. B.

THE LATE AURICULA SHOW.

ALTHOUGH an ardent lover of all hardy plants, and specially of spring flowers, I fear I lack that sacred fire which seems to animate those devoted florists who find in the Auricula the ideal of floral beauty and perfection. Notwithstanding the praise bestowed on the Auricula, somehow I feel that it is for the early spring but a cold-looking flower at the best. Its body of paste of the purest whiteness reminds me of snow and white and grey edges of hoarfrost. There is no warmth in its hues, no evidences of reviving Nature to quicken the pulse and foster pleasant hopes of brighter days coming. Of course I am writing of the show Auricula, or, as the devotees have it, "the Auricula," for alpinists or any pretty border flowers are but very secondary consideration, yet Heaven forbid that I should be supposed to be deprecating the enthusiasm of those who find in the cultivation of the Auricula that pleasure and delight they so certainly do. In their own way they are no doubt doing a good work, although it is one with which the lover of hardy flowers pure and simple can find but small sympathy. Compared with Orchids, the Auricula is perhaps almost as costly, and probably even more difficult to grow, needing, hardy as it comparatively is, yet the greatest care and most patient attention, and is so subject to trouble and tribulation, that but one or two mistakes may lose the plants, or at least the bloom, for an entire season. You cannot grow the Auricula proper in the open border, or if it did exist it would not be worth looking at; compared with any of our pretty species of hardy flowers, it would be poor and washy-looking. But in spite of all these to me very considerable defects, I can understand the enthusiasm which some entertain for it; there are specialists in every thing, animate and inanimate, and our Auricula fanciers in their devotion perceive beauties and features that are incomprehensible to the common eye, which, delighted with a mass of yellow Gorse, of wavy Bluebells, or of scarlet Poppies, turns from a chaste and wonderfully perfect Auricula with coldness, if not contempt. To me the most striking flower at the late show at South Kensington was a dark self, almost blue, Charles Perry, so prominent in Mr. Turner's fine collection, and yet I learn with dismay that, charming as it looked, it is not regarded as first-class, because its paste is not all that can be desired. Some of the bright alpinists with their gold centres were striking, but even these were an air of unreality, as though specially got up for the occasion. Would they bear these bright faces and glowing eyes if growing

in the open border, for thereafter all was the test, a vulgar one perhaps, but nevertheless the test to which I invariably brought them? And yet there are many fine clumps of border Auricula about the country that are very pleasing, and give ample room for admiration. They are not too fine in form, but, with that modesty which seems innate in the Auricula, have yet enough boldness to hold up their faces to be looked at in large and pleasing clusters. Here is a field for the raiser of new things in this class of plants to look after. We want yellows, reds, blues, purples, crimsons, and other bright tints, the stems stout and strong, the flowers erect, the plants robust and hardy. *Primula viscosa* and its deep-coloured variety *intermedia* seem to present the ideal in habit, but these may be improved upon so far as to give us larger flowers, more of them, and greater variety in colour.

But if the Auricula proper failed to captivate me, I was far less interested in those pale, bloodless things which someone has termed "fancies," and in doing so has strangely blundered. Why such things should get so much care and useful pot room, whilst I would not find for them 1 in. of border space, is more than I can comprehend. I have a strong belief that such genuine florists of the Auricula school as Mr. Horner or Mr. Simonite have little love for these things; they are, in fact, but Auricula abortions.

That by no means unsuitable ally of the Auricula, the gold-laced Polyanthus, seems to have, here in the south at least, even fewer admirers than the former flower has. I am not sure whether it is not far more difficult to get up any sentiment over these than over the most cold-blooded of the Auriculas. A good laced flower may be pretty; that I admit, but it is not striking; but the great feature of those exhibited, comprising, as they did, the best named sorts, is that nearly all seem to fall very short indeed of the florist's own ideal. That large, coarse-looking flower, Buck's George IV., I would not give border room. The tact that such a flower is still shown shows very forcibly how little progress towards the ideal has been made with gold-laced Polyanthuses since Buck's days. Mr. Samuel Barlow had in his new kind Sunrise a flower nearer perfection (according to the approved standard) than any other red-ground flower, for the lacing is refined and perfect; but here, as usual, the newest flowers are always the best. His new kind, John Bright, is more massive than other black grounds, and it has plenty of body, with a fine bold lacing, but it is rugged in outline. No matter whether it be these new ones or the older Exile, Cheshire Favourite, or Lord Lincoln, they are after all but toys and playthings amongst flowers. Why, there was a Lord Lincoln with blooms by no means perfect, and no bigger than a threepenny piece.

Almost the only real spring flowers were the rich-coloured border Polyanthuses and Primroses, staged at the further end of the show; that these were immensely admired was inevitable. Here were genuine hardy border flowers that would look as fresh and as gay, aye, and as lovely in the open ground as here in the pots in which they are shown; what size of flower, and even what perfection of form if that be wanted; what brightness of hue, and how varied these the lover of hardy flowers could not fail to admire and appreciate. I should like to see ten times as many of these bright, fresh flowers at the next of the society's shows.

The species of Primulas, as a rule, did not look happy in pots, excepting the garden varieties of Sieboldi, which make elegant and truly charming pot plants; but rosea, scotica, denticulata, abyssinica, marginata, and others evidently pined for their quiet modest nooks on the rockwork, and did not enjoy the gaze of hundreds of eyes that looked, wondering why those little modest creatures had been brought there.

ALPINUS.

Balsams in the Open Air.—The following is an account of the way in which I have for many years managed these in this unfavourable climate. I sow the seed in moderate heat, and when the young plants are about 2 in. or 3 in. high they are placed singly in small pots, say 2-in. to 3-in. or 4-in. ones. They are then plunged in a mild hotbed, and have temporary protection during cold weather, but are uncovered in warm weather. The pots will get filled with a ball of roots no matter how hard. In that condition they are left until the flowers begin almost to show colour. Then, and not till then, they may be planted out, which will be in June or July. They are then turned out of the small pots, from which they part all the better if the pots are soaked the night before. Then when placed in good soil they go ahead and put forth little else but flowers. I found that when planted out too soon they threw out a mass of luxuriant broad leaves, which completely hid the flowers, and they had to be cut away, and this induced me to try the above system. Even after having been thus planted out they may be transferred to sizeable pots for house decoration.—J. W., Dublin.

THE DANDELION-LEAVED EVENING PRIMROSE. (*ENOOTHERA TARAXACIFOLIA*.)

THIS is one of the finest of that section of Evening Primroses characterised by a low, trailing growth and large blossoms of a white-pinkish or yellow colour, expanding fullest towards evening. The name, *Æ. taraxacifolia* was at one time applied to *Æ. acaulis*, a much inferior plant with smaller flowers, but, possibly, only a variety of the other. Both are quite hardy and perennial in light soils, but they often perish during winter on those that are wet and heavy. *Æ. taraxacifolia* has a fine effect where planted in a rich deep soil in the rock garden where its trailing stems can droop over the ledge of a block of stone. The flowers vary from $2\frac{1}{2}$ in. to $3\frac{1}{2}$ in. across, and are pure white when first opened, but afterwards gradually change to a delicate pink. Other beautiful kinds are *Æ. marginata*, *Æ. missouriensis*, also called *Æ. macrocarpa*, all of which require treating similarly to *Æ. taraxacifolia*. *Æ. speciosa*, which is a very handsome plant, grows from 1 ft. to $1\frac{1}{2}$ ft. in height, and bears an abundance of large and delicate white blossoms. This plant is best grown in a border of rich



The Dandelion-leaved Evening Primrose (*Enothera taraxacifolia*).

light soil, where, if not disturbed, it will soon spread into a large tuft. *Æ. taraxacifolia* is a Chilean species, but the others mentioned are natives of North America.

W. G.

DIVIDING PRIMROSES.

IF the notes sent by me are of use to any of the readers of THE GARDEN it is because they show how flowers may be grown under unfavourable conditions of soil and climate. Referring to what I lately wrote about spring flowers, several letters have reached me explaining how Primroses may be successfully divided, and I see that on page 447 Mr. Douglas expresses surprise at my saying that Primroses and Polyanthus generally become useless for the decoration of mixed borders in about three years. I can assure him that it is so in this soil. In cottage gardens, where every inch of soil is pulverised and cleared of lumps by many years of constant tillage, and in soils which are by nature fine and open, I know that these plants may be left undisturbed for several years without deteriorating, and that they may be divided with comparative ease; also, where their growth is made a speciality, and where there is sufficient labour at command to pay the required attention to soil and watering, they may thrive pretty well after division; still, I think the plants generally reach perfection in their second spring, and are never afterwards so fine. To make Primroses and Polyanthus flower well perhaps the chief point to be aimed at is to reduce to a minimum the distance between the leaves and the fibres of the roots; fine rich soil on the surface and frequent surface watering tend to effect this; but where, as in this garden, the soil is coarse, lumpy, and retentive, and watering is seldom required, the roots become large and few, and follow the moisture downwards when the surface becomes dry. In a year or two a large and hard mass of rhizome has formed between the leaves and the roots, divisible only with a knife, the circulation between leaves and roots is checked, the plant deteriorates, and in time dies. Now I know that the best remedy for this is to take more pains about

soil; but where a garden is large and rambling in proportion to the labour available for it, and where the materials for improving the soil, such as leaf mould and sand, are scarce, I think a constant succession from seed will be found more useful than divided plants. I sow the seed early in May, plant out in the seedling bed in July, and in October transplant the seedlings where they are to remain. They flower pretty well the first spring and very well the second. Anything especially good I cut up at the end of the second spring, breaking off the fleshy rhizome just beneath the base of the leaves. Those which have vigorous constitutions put out roots, and sometimes do pretty well, but never as well as before. As regards different species of Primrose, each requires different treatment, and some bear division pretty well, but I think that the same general rule applies to nearly all, and that their first and second flowering are their best; it is certainly so with *P. japonica*, and *P. denticulata* and its kindred. Others, like *P. cortusoides* and its varieties, come nearer to a stoloniferous habit, and may be divided with ease. I notice that *P. japonica* at three years old has a tendency to rot away at the crown in spring. I fancy that when large it becomes more susceptible of spring frost, which does not affect younger plants in the same way.

I have said nothing about double Primroses, which must be increased by division, or not at all. I have for several years tried to make soils for them of the most approved composition; still, they are not satisfactory; the double white, and the lilac, and the small yellow live and flower, but are not nearly as good as I have often seen them in the cottage gardens of Nottinghamshire and Hampshire. If I ask how to treat them, where I see them doing remarkably well, I am told in one place that I must never meddle with them, but leave them quite alone; in another that I must divide them very often, but always late in autumn; in a third, that they must never be divided except in spring; and the conclusion I draw is that the successful cultivation of all such flowers depends much upon soil, but still more upon air and climate.

C. WOLLEY DOD.

Edge Hall, Malpas.

TUBEROUS BEGONIAS FOR BEDS AND BORDERS.

PERMIT me to endorse all that "H. J. E." so well says in favour of these in THE GARDEN (p. 425). For continuous flowering, variety of colour, habit, and size of plants and flowers they have no superior among half hardy plants. As to the latter point, they are barely so hardy as a *Pelargonium* in May, though they seem to bear the cold quite as well, and as long in the autumn. The soil that suits other flowers does very well for tuberous Begonias. It should not be too rich, else it is apt to cause an excess of growth with a smaller percentage of bloom; in soils of moderate quality and in sheltered, warm situations these Begonias bloom most profusely. The plants should be staked if placed in exposed positions, as, from the succulency of the stems they are easily broken off just above the root-stock. They are very telling in groups in the mixed border or in masses here and there in sheltered bays, at the extremities of lawns, or for lines in ribbons, or the furnishing of beds, large or small. Even those most opposed to the bedding-out or massing system would hardly object to see masses or lines of these tuberous Begonias with their ample foliage and brilliant and graceful blooms. They vary almost to infinity in habit, and by a careful selection of semi-pendulous varieties, few plants are better adapted for the filling of vases out-of-doors or in. The more brilliant varieties equal *Pelargoniums* in dazzling beauty, while the ample green foliage half hides, while it enriches vases, hanging baskets, raised beds, &c. These Begonias are also invaluable for cutting. Hardly any plants are more effective for the furnishing of glass or china vases, epergnes, &c., than flowering sprays of these tuberous Begonias. They ripen seeds plentifully in the open air in good seasons, and these not only provide a rapid and ready mode of increasing the plants to any extent, but also produce many new and improved varieties. The old sorts can also be readily increased by converting each young shoot into one or many cuttings or plants in the spring.

I have little to add to "H. J. E.'s" simple hints on preserving the tubers, only this, that as a rule the smaller ones keep best; dry, cool, and frost-proof quarters are also the safest. Occasionally a fine root goes off in winter with dry rot, but that is less of an evil than losing the major portion of the tubers from wet rotteness. A large grower of these once called while we were potting up our stock for a start. An enormous tuber of *Vesuvius* that had furnished a 12-in. pot the year before, was turned out and proved white with the mycelium of dry rot. He said, "Mine are all alive, stored in damp soil in a cool pit, with nothing but a mat over it

in winter." A few days after I called to see them; a trowel was brought, the light thrown down with an air of triumph; a thrust made among the tubers—squash; and up rose such a foul odour of decomposition that would have sufficed to ensure a conviction for a nuisance from the sanitary inspector. Tried again and again, with the same result; no sound tubers came forth, and from that day to this I have adhered to dry storing. This winter most of our stock were stored in boxes of earth placed high up over the potting bench, and as a small furnace fire is in the shed they were not frozen, and not one seems to have died. They had no attention whatever from November to March, and came out safe and sound. The roots of specimen plants in pots seldom keep so well as those lifted, boxed in light soil, and stored away roughly as here described. This brings me to another point of importance in the safe keeping of tuberous Begonias. The larger roots, either from age or their greater tenderness, are, as I have already said, not such sure keepers as the smaller ones; consequently, it is wise to propagate plants of all the finer varieties during the summer, so as to have a good stock of all the choicer Begonias in 4-in. or 6-in. pots for the winter.

For this purpose, however, the cuttings must be of the right sort; they must be put in at the proper time, and the grower must be sure that the plants have really formed proper bulbs or tubers before winter. But this subject, the most vital of all in the culture of these plants, shall be treated of in a future number. Meanwhile, I hope by seconding "H. J. E.'s" recommendation of these beautiful plants to induce many of your readers to set about their cultivation in the open air at once. Not only is good seed cheap and plentiful, but plants can also be purchased towards the end of May at cheap rates, by the score, hundred, or thousand, for immediate planting.

D. T. FISH.

THE ROCK GARDEN.

THERE are now considerable numbers of plants in flower on the rock garden here, some of which deserve especial mention. Amongst them are fine patches of *Aubrietia græca*, *A. croatica*, *A. columnæ*, and *A. Campbelli*, all of which are very effective; also a fine, large, pale blue-flowered form of the Wood Anemone, called *A. Robinsoniana*, likewise *A. thalictroides* and *A. narcissiflora*, just opening. *Primula rosea* has been in flower for two or three weeks, and, although the plants are strong, and appear to be doing well in sandy peat, having made capital growth in the same place last year, yet they scarcely raise their flowers above the leaves this season; but, though I should like to see them clearly supported on stalks, I must say they are very pretty, as are *P. marginata* and *P. Allioni*, also in bloom, the latter very pretty, having rose-coloured flowers, very similar to those of *P. marginata*, sitting upon a tuft of leaves, and looking very much as if they belonged to a diminutive form of *P. viscosa*. There are likewise several species of *Orobanchaceæ* in flower, all very much alike, at least too much so for horticultural purposes. I should think they might be all referred to one type. Their names are *O. cyaneus*, *O. vernus*, *O. Gmelini*, *O. alpestris*, and *O. sylvaticus*. *Tulipa Greigi* has very fine scarlet flowers and spotted leaves, and *T. stellata* and *T. suaveolens* are also interesting.

Our best *Saxifragæ* in flower are *S. muscoides* and *atro-purpurea*; of the last there is a beautiful cushion $1\frac{1}{2}$ in. in diameter, quite brilliant and alone worth a visit. *S. aretioides* and *primulina* are both also very fine, bearing about a score of racemose cymes of Primrose-like flowers. *S. flagellaris* is increasing rapidly by means of its sarmentose growth in a moist and rather shady situation. *S. Wallacei* and *S. irrigua* seem very much alike, the former being the better of the two. *Hutchinsia petrea*, a plant we had from Mr. Niven, is better than *H. alpina*, good though that sort is. It forms very close tufts of dark green foliage from which appear umbellate racemes of snowy-white flowers. *Draba ciliata*, *D. saxatilis*, *D. tridentata*, and *D. Kotschy* are our best *Drabas*. *D. tridentata* has yellow flowers, but is quite distinct in habit from any of the *D. aizoides* section. *D. Kotschy*, a real gem, is the best of those with white flowers. *Gentiana verna* and *G. acaulis* are pretty, and *Sanguinaria canadensis* is doing well in a moist, rather shady situation. *Androsace carnea* and its variety, *A. c. eximia*, also *A. Laggeri*, *A. helvetica*, *A. villosa*, *A. glacialis*, and *A. vitaliana* are thriving well in sand and leafy peat. *A. sarmentosa* and *A. lanuginosa* have got through the winter slightly injured. *Bryanthus erectus*, a close growing trailer of the Heath family, looks very much like *Empetrum nigrum*; it has beautiful pink umbels of urceolate flowers, which are quite as pretty from a floral point of view as those of *Daphne Cneorum*.

Delphinium Menziesi is especially worthy of note, being perfectly hardy. It has been in flower for a fortnight. Some of its diminutive racemes of well formed, purple-blue flowers are fully open, and others have yet to expand. They flower from the ground and are

not a foot high; much was said about *D. tricornis*, but I think this quite equal to it, though very distinct and much dwarfer and earlier. Our best and earliest *Veronica* is *V. satoreiaefolia*. *Ardoini* is a very neat *Cytisus*; it creeps along the ground, rooting as it goes, and no one piece of it is elevated one inch above another. *Alysum montanum*, yellow, *A. podolicum*, white, are pretty plants. *Arnebia echioides* has been in flower out-of-doors for a fortnight; *Euphorbia capitata* may fairly be admitted into companionship with rare alpine and it is not altogether devoid of attraction. *Polygala Chamæbuxus* var. *atropurpurea* is very fine in a shady situation on the north side of a rocky mound. Among American Dog's-tooth Violets, the best are *Erythronium americanum*, *E. giganteum*, *E. grandiflorum* (considerably the best), and *E. albidum*. *Mertensia virginica* and *Corydalis nobilis* are in bloom, and *Erysimum pumilum* is very dwarf and pretty. We have also *Iris olbiensis* lutea and *I. pumila* coelestis, *Arenaria verna* and *A. triflora*; *Erodium hymenodes* is the first one to flower, also the Sicilian Violet, *V. palmensis*. A white-flowered form of the common Germander Speedwell (*V. chamædryas alba*) which we had from Mr. Thompson, of Ipswich, is not to be despised; on the contrary, it is very attractive now. *Houstonia cærulea* is trying to do what it nearly did last year, that is, flower itself to death. I must watch it closely. *Ranunculus montanus* and *R. amplexicaulis*, a very good white one, are both in bloom, also *Geum reptans*, which is much like *G. montanum*, but better, I think. *Cortusa pubescens*, from Haage and Schmidt—probably *C. pubens* of others—is showing its magenta flowers. There are also the Alpine Poppy and Coltsfoot, and the dear little *Silene acaulis* with several flowers open, and its green cushions bristle with rosy little flower buds, ready to expand on the first sunny day. *Vesicaria utricularia*, a little known member of *Cruciferae*, and *Thalictrum anemonoides* close my list.

T. D. HATFIELD.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Wallflower Harbinger.—I think "Girofle" is incorrect in regarding this Wallflower as a double kind. Seed of it was originally offered by Mr. B. S. Williams, of Holloway, under that name. It was a selection from the popular London market strain, said to be dwarf, early, and of a rich deep hue. Many seedsmen have since termed their strain of blood-red Wallflower as Harbinger, but I doubt whether any selection can or does excel the grand strain so commonly grown by our market gardeners. The old double brown kind, as far as I am aware, has no specific name, and is pretty well known as the double brown. I am glad to find that a revived interest in these Wallflowers is growing up. If we can but recall some of the old favourites of our gardens back to life and beauty, it will prove almost as meritorious a work as discovering new and unknown plants. It is rather a strange peculiarity of the double Wallflowers that they are sweetly perfumed. There is no rule with respect to odour; but when we find perfume largely in single flowers, we are apt to think that this odour is existent in or originates in the fertile organs and their secretions; but the double Wallflower has no organs other than the ordinary floral petals. Of course the same thing is found in the double stock, the flowers being quite devoid of organs or pollen. On the other hand, many double, highly perfumed flowers have fertile organs—the Rose and Carnation, for instance. There is very much of interest to be found in this question of odour, as, for instance, it is stated that it is a special office of perfume in flowers to attract insects for the purpose of procuring fertilisation. This applies to flowers that are not strikingly attractive. If this be so, I fear the busy bees are fooled somewhat when they are lured to double Wallflowers and Stocks to find their perfume the only virtue they possess for them.—A. D.

Wallflowers and the Frost.—Wallflowers, as a rule, are sadly cut up by the winter's frost, at least where grown in rich garden soil; but on walls they are uninjured, even where fully exposed. This is doubtless owing to their growth being well hardened by exposure, and from having so confined a root space as that afforded by the crevices of walls, where they have nothing but the mortar on which to subsist. Doubtless many instances of their healthy condition on old ruins may be found in much colder localities than this; but here I find that, although double varieties have been well high cleared off by the last few severe winters, and single ones very much cut up, even in sheltered gardens, Wallflowers in their own favourite situations, viz., the tops of walls, are quite healthy and floriferous.—J. G., *Linton*.

Dwarf Nasturtiums.—Mr. Cornhill, in his short note respecting these summer blooming plants, commends them because of the very little trouble and expense their culture involves. This is a

matter of the first moment to many who have gardens, as only those who possess glasshouses can keep plants of these tender things through the winter. I grow a considerable quantity every year from seed to produce seed, as plants from cuttings produce little or no seed. The greatest care in selecting to keep stocks true has now resulted in strains that come almost as correct as if obtained from cuttings. I, however, sow my seed in frames without heat, and when the plants are strong, lift and replant thinly still under glass, and as the season advances the lights are left off altogether, so that the plants may be moved into the open ground towards the end of May. Mr. Cornhill is right in advising poor soil, otherwise foliage may unduly preponderate. Once well established, their flowering propensities are remarkable, holding on till the frost compels their being pulled. I have only what are known as the compactum type, which includes bright scarlet, crimson, dark maroon, yellow, and carmine colours.—A. D.

Primroses under Fir Trees.—But few plants will grow, much less flower, satisfactorily under the shade of Fir trees, but Primroses and Polyanthus are an exception, for we have many wide-spreading Conifers, the open spaces beneath the lower branches of which are quite carpeted with Primroses, and most satisfactorily they flower, and in a season like the present, when plants on open borders are withered up by the continuous parching winds, it is refreshing to look at these carpets of Primroses—masses of delicate blossoms—under the friendly shelter of the drooping branches. We are now planting all our surplus Violets, double and single, bulbs that have been forced, and roots of early spring flowers from the reserve garden, which will be watered until they get established, after which they will take care of themselves in such positions as that just indicated.—JAMES GROOM, *Linton*.

Twin-flowered Christmas Roses.—Some seem to think that *Helleborus niger* bearing two flowers on a stem is remarkable. The Hellebore grown hereabouts as *niger* not only bears flowers in twos, but they are of great size, as is also the foliage; indeed, I see no difference between it and that which is called *H. niger* major. Fully 75 per cent. of the plants I have seen have been twin-flowered this season. I am inclined to think the habit is peculiar to what may be called a variety of *niger*.—J. WOOD, *Kirkstall*.

Dielytra spectabilis in permanent positions sheltered by trees or shrubs when once planted increases in beauty as it attains mature size and age, whilst as a forced plant it is indispensable where large conservatories have to be filled during the first three months of the year; as a hardy border plant it never fails to put in its welcome appearance, and from the middle of April until June it is quite laden with drooping, waxy, pink blossoms. It begins to push up its flower-spikes very early in the season, and therefore gets its hardiness pretty well tested, for we frequently find it drooping from the effects of severe spring frosts, but unless the sun shines fully on it in a frozen state it sustains no harm. We therefore select positions with a western aspect for it, so that it may get gradually thawed before the sun shines on it, and have not yet had it injured despite very unpropitious springs. It is a strong rooting plant, and flourishes in any good garden soil. We generally lift a quantity of clumps of it for forcing, and the small pieces that break off all make plants if put out in nursery lines, and it is a very good subject to remove at any time; even large clumps now showing flower may be transferred to any position which it is desired to beautify, and the plants will scarcely feel the check. Good masses of it, when well established and screened by overhanging trees, are really beautiful.—J. GROOM, *Linton*.

SEASONABLE WORK.

Flower Garden.—For bearing the brunt of a severe winter and spring there are few better subjects than the *Viola* and good bulbs; but the latter, particularly the *Tulip* and the *Hyacinth*, should be planted deep, well mulched to keep out frost, and carefully staked to prevent the blossoms from being injured by rain and wind. For edgings the dwarf *Scilla sibirica* and *Dog's-tooth Violets* are altogether in advance of the common run of spring bedders; they increase rapidly, and improve by being left in the ground for several years. As a succession to spring bulbs no garden can be complete without a good border of the hardy alpine *Auricula* and the lovely *Primula cortusoides amena*. The latter may be propagated by breaking up the roots, and the *Auriculas* should be sown as soon as the seed is ripe. As tender bedding plants increase in bulk and quantity, all half-hardy things, such as *Calceolarias*, autumn-sown *Stocks*, and *Echeverias*, may be planted out to make room for them as they are taken out of the houses. The hardening of tender plants requires great care, particularly where they are taken direct from Vineries to cold pits and, as is too often the case, fully exposed to sun and wind before they are able to bear it. Pay timely attention to tender annuals that were sown on temporary hotbeds in March. To have *Stocks*, *Zinnias*, and *Asters* really good they should be sown thinly and pricked out before they become drawn. Others which have been sown in small pots and plunged should be well thinned and properly hardened before they are planted out.

Pleasure Ground.—Now rain has fallen, and when the buds are just bursting into growth, will be the best time for transplanting *Hollies* of all sizes. Large trees should be well stayed to prevent them from rocking, and it will be necessary

to water and mulch to preserve the roots from the effect of drought. In some places the gold-leaved kinds have been much injured by the severe winter, and are losing all their old foliage. Where this is the case defer planting until they have got fairly into growth, or, better still, allow them to stand undisturbed until September. The most important, and in many places the most heartrending, work will be the pruning of evergreens. In ordinary seasons many people prune evergreens at all times; but spring is the best time, as the wounds heal quickly, and, although the part to be removed may be dead or dying, by keeping out frost, rain, and air, it forms a powerful protection to the roots. The untidy appearance of frost-bitten shrubs is a strong incentive to their immediate removal, and many fine things are lost in consequence. Owners will, therefore, do well to exercise patience, and put up with the lesser of two evils until such time as genial weather settles to their own satisfaction that their old friends are past recovery.

W. COLEMAN.

THE INDOOR GARDEN.

DWARF PURPLE SCABIOUS IN POTS.

THE cultivation of hardy and half hardy annuals in pots for conservatory decoration is not practised to the extent it should be, or as it profitably might be, for they are extremely useful in autumn and winter when but few other plants are available. Few prettier subjects can be grown than the purple *Scabious*, especially the dwarf strain lately introduced, and of which we give an illustration. The plants, being dwarf and compact in growth, are well suited for pot culture, and they produce an abundance of flowers for several months in succession. For cutting purposes, too, the flowers are very desirable, as they last a long time in perfection in a cut state. The colour varies from the deepest crimson-shaded



Dwarf Purple Scabious.

maroon to pale pink, so that in a packet of seeds many intermediate shades may be obtained. We have never seen this dwarf *Scabious* so well grown as at Gunnersbury Park, it being a special favourite with Mr. Roberts, who grows it extensively. He grows it in the open air in summer for cutting purposes, and in pots for conservatory decoration and cutting in the autumn and winter, and he thus obtains an uninterrupted supply of flowers for several months. For flowering in the open air the seeds may be sown in spring in the ordinary way. For flowering in pots the seed should be sown at intervals in spring and summer in heat or otherwise, and the seedlings either grown on in pots or planted out, but in either case they should receive no check, but should be grown freely on till they are placed in the pots in which they are to flower. Thus treated, they cannot fail to give satisfaction, and will be found extremely useful.

W. G.

POINSETTIAS, DOUBLE AND SINGLE.

GORGEOUS as was the old kind of *Poinsettia*, it has been eclipsed by its American rival, *P. pulcherrima plenissima*, which has not only as much or more colour, but has an increased number of leaf bracts, and heads of such a size that when fully grown measure from 15 in. to 20 in. across. When first sent out it was thought by many that the drawings representing it were exaggerated, but instead of this they rather fell short of what has often since been produced. But, fine as the double variety is, we cannot afford to discard our old tried friend, which for cutting is perhaps the best of the two, and therefore it is quite likely that for a long time to come the two will be found to stand side by side. As there is a white variety in existence it is a wonder that hybridists have not been at work on the

two, and given us some with pink bracts, which no doubt we shall have ere long, as in houses with a dry atmosphere it is not at all unusual to see them seed, although I have never yet found any fertile. I have not only tried to breed from the red and white, but I have also tried a cross between the *Poinsettia* and *Euphorbia jacquiniæflora*, which failed, as I only obtained seed-pods from both, although these when swelling looked quite full and distended.

In Propagating Poinsettias, the easiest way is by means of cuttings made from the hard ripened wood; but when it is desired to make the most of this and get as many plants as possible, the best plan is to strike from single eyes, as each of these if put in carefully with sufficient wood attached will grow. Those who have seen Vine eyes prepared will know how those of the *Poinsettia* should be made, which is to cut them about 2 in. long, and slice the under part away under the bud, when they will be ready for putting in. This should be done in very sandy soil where they must be just covered, and then placed under a bell or hand-glass where they can be subjected to a brisk, moist heat, in which they soon callus and begin to emit roots. Cuttings are best with about three buds or joints, the upper two of which start and form the shoots that flower, and if it is desired to increase the number of these they must be stopped, but when this is done it always diminishes their strength, and, as a consequence, also the size of the heads or flower bracts. If, therefore, it is desired to have these large and fine, the shoots should be allowed to run, and in order to get and keep them stout and stocky, subjected to plenty of light and air, as without these essentials they soon draw up to a great height. To prevent this many growers place them out-doors, but it is much better to propagate at different periods, as by so doing they may be had of all heights and sizes, varying from 6 in. up to 3 ft. or more. The present is a good time to put a batch in, and the last may be left till as late as July or August, when cuttings made of the young shoots are best if taken off with a heel, or the tops may be made use of, which, when struck, make dwarf plants that yield fine heads of bloom, and are just the thing for vases to stand on dinner tables or other purposes of that kind, for which those with short single stems are so well adapted. If large specimens are required the old plants must be saved, as it is useless stopping young *Poinsettias*, thinking to get a number of shoots, but by cutting back any propagated the year previous, they break freely and produce a number of branches. The way to treat these cut-back plants is to shake them out as soon as they break and repot in fresh soil, the most suitable for them being about equal parts of peat and loam, with just sufficient sand to keep the whole open. When potted they should be placed in a house or frame where they can be syringed and kept close for a week or so to induce fresh roots, when it will be necessary to give plenty of air during the day to prevent them drawing, and it will be a great help towards this if they are kept with their heads well up to the glass, as then the growth they make is very short jointed and solid.

Red spider, which is about the only insect that affects *Poinsettias*, must be kept down by syringing daily, taking care when doing so to wet the under sides of the leaves, as that is where the enemy lurks, and can only be got rid of by breaking up the webs he weaves with water.

Under cool treatment *Poinsettias* do well during the summer, but they require heat in early autumn and winter to enable them to fully develop their bloom, and besides this liquid manure should be given at the same time, which from its stimulating nature is a great help to the roots. A temperature of from 65° to 70° will be quite sufficient, and to get the floral bracts of good substance so as to fit them to stand in a conservatory, they must have the full benefit of the light and sun, and if the plants are then gradually hardened off by giving more air, they may be kept in full beauty in a house with the glass ranging 10° lower than the figures above-named, provided the atmosphere is dry and they are not too wet at the roots.

S. D.

SEASONABLE WORK.

Plant Houses.—With a profusion of bloom in this department it will not be well to forget that a time is coming when flowering plants will be less plentiful, and that the gaiety of the conservatory will in a great measure depend upon the provision that is now made for meeting the deficiency. When well managed tuberous-rooted *Begonias* stand unrivalled, and embracing, as they do, almost every shade of colour, they are well adapted for forming a gorgeous group or placing beneath the shade of fine foliaged plants. Spring seedlings or autumn cuttings now starting, with *Gloxinias* and *Achimenes*, if kept close to the glass in an intermediate pit, make short floriferous growth and last a long time in bloom. Pot on *Balsams*, *Cockscombs*, *Celosias*, and *Amarantus*, keeping them near the glass to prevent them from becoming drawn, weedy, and worthless. Make sowings of a few seeds of each of the above for succession, guard against overpotting, and feed them when well established. Feed *Fuchsias* and *Pelargoniums* liberally with clear, weak liquid when they have filled their flowering pots. Keep the latter tied out and divested of bloom until they are wanted, and put in cuttings of favourite kinds for winter flowering. If *Bouvardias* are likely to be scarce young growths from cut-back plants will strike freely and make nice bushy plants by the

autumn. Old plants, the best of which will be those struck last year, may now be turned out, reduced, and repotted in light, rich soil. Keep them near the glass in low pits, syringe well, but guard against overwatering. A good batch of *Begonias*, *Thyracanthus rutilans*, and *Scutellaria mocciniana* put in now will do good service in due time. *Euphorbias* and *Poinsettias* will take care of themselves, and cuttings may be put in whenever they can be obtained. Prick off *Cyclamens*, early sown *Primulas*, and *Cinerarias* in shallow pans of leaf mould and sand and make another sowing for succession. Although the cultivation of the *Cineraria* is exceedingly simple, many people spoil their plants by sowing too late and by forcing to make up for the time lost.

W. COLEMAN.

PILRIG PARK NURSERIES, EDINBURGH.

HAVING a spare day in Edinburgh lately, and being anxious to inspect some of the best nurseries in that city, I was advised to visit Messrs. Dicksons' establishment at Pilrig Park. The seed warehouse belonging to the firm is distant from the nurseries about 1½ miles, and business transactions are carried on between the two departments chiefly by means of the telephone, Messrs. Dicksons & Co. being the first in the trade to introduce this modern invention, and they find it so useful that they will probably be the last to give it up. On the north side of the nursery ground, which slopes southward, the principal ranges of glasshouses have been erected. The main block contains 20,000 sq. ft. of glass; one long corridor bounds the north side, and some half-dozen or more span-roofed houses open into this. All can be gone through without going out-of-doors, and potting and packing sheds can be entered from behind the corridor. The contents of these houses are much the same as one is in the habit of seeing in nurseries, so far as variety is concerned, but some of the plants are more in the form of specimens than one often sees. This is particularly the case in regard to Tree Ferns and Camellias. Associated with these are also some fine plants of *Rhododendron arboreum*, *Falconeri*, *argenteum*, *Thomsoni*, and many others of the finest kinds. An excellent *Maréchal Niel* Rose covers, to a large extent, the west slope of the roof of the Camellia house. It is on the Brier stock, and, so far, nothing could be more satisfactory; it produces hundreds of blooms. *Lapagerias* also grow well in this house. Besides the specimens, all spare corners are filled up with small healthy plants of *Azaleas*, *Acacias*, hardy *Dracenas*, &c. Two or three divisions of the corridor are arranged in a natural-like style by means of miniature rocks, *Virgin cork*, and such like, and the *Palms*, *Ferns*, &c., growing here have an excellent effect. The back wall and other available places are all draped with *Filmy Ferns*, *Mosses*, *Lichens*, the little creeping *Ficus*, and here and there *Begonias* of the Rex section. This is certainly a new feature in general plant nurseries, and it is worthy of more general adoption. In the Heath house were immense numbers of fine healthy plants, and the choicer kinds, such as *Marnockiana*, *Austiniana*, *Victoria*, *Cavendishi*, *ampullacea superba*, *vestita*, &c., were those in greatest quantity and finest health. *Epacris* are also grown largely here. Another house of the same dimensions (70 ft. long by 13 ft. in width) was completely filled with a choice assortment of young Ferns, and the next house of the kind contained a miscellaneous collection of valuable plants, including quantities of *Eucharis amazonica*, *E. candida*, and *E. pumila*, the demand for all of which is very great. *Crotons*, *Dracenas*, *Azaleas*, and all the most useful kinds of *Orchids* I saw in abundance, and perfect as regards cultural development, while among commoner plants, one large house was filled with a selection of fancy *Pelargoniums* and plants of a remarkably fine strain of *Cineraria*. The new double *Primulas* have also found favour in this nursery; about Edinburgh there is a great demand for them. Another large house is devoted to New Holland plants—not the least interesting department in this nursery. On the north side of the corridor wall are many ranges of propagating pits, but of these only a few are devoted to exotics, the greater part being exclusively used for increasing choice hardy flowers, rare shrubs, and grafting the finest of the *Rhododendrons*. This is a department rather overlooked in these days, when fine-foliaged, tender plants are the fashion, but it is a section in which the public are now becoming interested. In one of the long pits in question was a large number of the lovely little *Sibthorpia europæa variegata*, figured in THE GARDEN.

Besides pits I noticed many rows of frames in which were stored an immense number of hardy, herbaceous, and Alpine plants. *Phloxes*, *Pentstemons*, show and fancy *Pansies*, bedding *Violas*, *Pinks*, *Carnations*, &c., have, ever since any one can remember, been a speciality with this firm. Time was, and that not long ago, when collections of hardy plants in many nurseries were given up to make room for more fashionable subjects, but in spite of that the Messrs. Dicksons held to their old favourites, and they are now reaping their reward. Acres of selected ground are wholly devoted to them. *Sedums* and *Saxifrages* are always interesting, and amongst the latter I observed hundreds of the beautiful *S. Stracheyi*, and also of *S. Macnabiana*. Of *Pansies* and *Violas*, many of the best in cultivation have been raised here, and the improvement on old varieties is

still going on. Useful work is also being done in the way of producing a very dwarf section of fine flowering Pinks. They are wonderfully floriferous, and so dwarf that no stakes are needed. This must be regarded as a step in the right direction. Here I came upon some old lines of the beautiful *Saxifraga Wallacei* as fresh and green as if there had been no frost. Plants of this fine variety imported last autumn, and planted as a margin to a little bed, are just coming into bloom, and I consider it one of the prettiest of the section to which it belongs. The same may be said of the equally hardy double flowering *Matricaria*, which was sent out from here last season; so favourably was it received then that extensive preparations are being made in anticipation of an increased demand for it. The hardy Himalayan *Primulas*, such as *rosea*, *Cashmeriana*, and varieties of *denticulata* thrive admirably here, and are valuable additions to our choice hardy border flowers. *Achillea Ptarmica* fl.-pl. is another useful plant extensively grown; its neat double white flowers are invaluable for cutting during the summer and autumn months. Amongst other things of the kind, I observed large patches of such useful plants as *Campanulas*, including the beautiful new *C. Balfouri*, which is not yet in commerce; double *Potentillas*, *Delphiniums*, *Mimuli* of the most improved strain, *Daisies* for edgings, and dwarf hardy carpet bedding plants might be seen here in great variety.

Dwarf American shrubs are also largely grown in this part of the nurseries; *Kalmias*, *Andromedas*, and alpine *Rhododendrons* have withstood the severity of the winter here in a most satisfactory way. Hardy dwarf *Heaths* are being rapidly increased and much sought after. One of the earliest is *Erica carnea*, and this is succeeded by others constantly until late in autumn. Indeed, in ordinary seasons *E. Serlei* can be depended on to furnish choice white flowers for Christmas decoration. As yet we are still in the vicinity of the glasshouses, but here and there, especially about the main entrance, there are many beds and borders planted in a mixed way for effect with ornamental shrubs and trees. Amongst the latter were the graceful purple-leaved weeping Birch, ornamental cut-leaved Maples, purple-leaved Peaches, Hawthorns in variety, many interesting forms of Ash, Poplars, purple Hazels, &c.; while amongst shrubs were Hollies, variegated and green, and the hardy Japanese *Conifere*, which, though the thermometer fell below zero in January, have not suffered in the least. These are not in their present positions for permanent effect, but as great attention is devoted to the annual transplanting of every tree and shrub, part of the stock is placed in the positions in question for a time. Before leaving this part of the nursery it may be remarked that the new Scotch Strawberry "Bothwell Bank Prolific," now being distributed by this firm, promises to be a valuable addition to existing kinds. It is a ready forcer, the fruit is of large size, and as regards quantity and flavour said to be unsurpassed.

Redbraes Nursery, belonging to this firm, is entirely devoted to the cultivation of ornamental trees and shrubs, amongst which are many specimens of great beauty. Here planting is carried on with good effect, for which the position of the ground is well suited. In form it is a huge basin, with walks all around the most elevated parts, and in the centre there is a lake, occupying about 2 acres, full of aquatics, and with two islands in the midst of it also planted with vegetation most suitable for such spots. Amongst trees and shrubs here were good examples of *Benthamia fragifera*, which flowers and fruits so freely in Cornwall, *Arbutuses*, Sweet Bays, large quantities of the most ornamental kinds of *Ivies*, *Cotoneasters*, *Hypericum calycinum*, *Gaultherias*, and many dwarf shrubs for covering banks. Here was also a range of glasshouses, consisting of a long conservatory, chiefly filled with specimen *Camellias*, and three houses for the culture of young Vines. These were carefully isolated from the other plants, in order that no kind of insects may have ready access to them. Another large house here is devoted to the growth of single and double flowering *Pelargoniums*, and a long span-roofed propagating pit contained many thousands of young *Camellias* in one of the beds, the other being filled with cuttings of half-hardy shrubs. In another part of the nursery, lying on the south side of Pirlig Park, there is a large stock of remarkably well grown young fruit trees. Of late years Messrs. Dicksons have been considerably curtailing the number of varieties of Pears, Apples, &c., and cultivating in large quantities those sorts only that are recognised as the freest bearers. Standards have stems from 3 ft. to 6 ft. in height, and have finely-formed heads, and the dwarfs are sturdy, clean-wooded plants, mostly well set with bloom-buds. Cordons, too, are grown in large numbers, and sold chiefly for planting along the sides of walks and between large fruit trees on walls, where they give the greatest possible return from the smallest space. There is here, as well as in nearly all the other nurseries belonging to this firm, good brick walls for the training of the finer kinds of wall trees, such as Peaches, Nectarines, Apricots, and rider Pears, Plums, Cherries, &c. Amongst new and promising hardy fruits we observed good stocks of their

recently introduced Plums (Thomas Bruce, John Davidson, and Robert Maughan, all of fine quality and prolific. The smaller fruits, such as Gooseberries, Currants, and Raspberries, are extensively cultivated, and Dicksons and Co.'s *Invincible* and A 1 Red Currant are admitted by all who have grown them to be excellent sorts. Their Imperial White is another kind which deserves to be grown everywhere. Vast tracts of ground have now been traversed and plants innumerable inspected; but, notwithstanding all this, the forest tree departments are yet untouched. Those best acquainted with the rearing of forest trees of a superior description know that they cannot be produced in fine condition long on the same piece of ground without a change of crop. Indeed, to grow young trees in the healthy state in which they are found here, it is absolutely necessary to alternate them with green crops, such as Potatoes, Turnips, Cabbages, &c., and it is better still if the ground is sown down in Grass for a year or two, as the turfy matter left in the soil encourages the formation of healthy roots. It is the latter plan the Messrs. Dicksons follow chiefly and with the best results. Some acres of their nursery ground are laid down in Grass now, and in order to compensate for the want of this for tree rearing they have lately taken fifteen acres of land from a farmer, three miles to the south of the city, where the vigour of the young Larch, Scotch Firs, and such like bears abundant testimony to the value of the change. Overcrowding is also carefully avoided, and the excellent system of taking out the alternate lines after the plants have stood for two years leaves those remaining nearly 2 ft. between the rows, thus admitting plenty of light and air, and giving them ample room in which to develop side shoots.

In addition to forest trees, plants for game coverts, such as Evergreen Privet, *Rhododendron ponticum*, *Berberis Aquifolium*, &c., are grown in large quantities, and plants for hedges, such as Thorns, Beech, Myrobalan Plum, Yew, Arbor-vitæ, &c., are also grown extensively. Many thousands of Manetti and Brier Stocks, on which to graft and bud dwarf and standard Roses, are annually raised, and the collection of Roses was remarkable for vigour and clean, free growth. Such is a brief outline of one of the finest plant-producing establishments in Edinburgh.

CAMBRIAN.

NOTES FROM THE SOUTH OF FRANCE.

BETWEEN Marseilles and Toulon Olives are the chief crop, and the fruit when ripe is very showy, being of a bluish-black colour. When the trees become old and decayed they are severely lopped, the old limbs in some instances removed quite close to the trunk, an operation which renews their vigour, and after a few years they become quite fruitful again. The wood of the Olive commands good prices in the market for heating purposes on account of its durability in burning; therefore, this tree is one of the most profitable that can be grown. The majority of the mountains in the neighbourhood of the Mediterranean are covered with diminutive *Conifers*; in fact, where fully exposed to the boisterous drying winds they become creeping shrubs and quite stemless. The principal varieties found along this coast are *Pinus pyrenaica*, *Pinea*, the *Pinaster*, *Laricio*, *Pumilio*, and the common Spruce. The Stone Pine (*P. Pinea*), so effective in Italian villa gardens, is cultivated extensively along the Mediterranean coast for the production of its cones, which are used for lighting fires. Nothing can be prettier than the rounded heads of this Pine as it grows on the sandy shores of the Mediterranean. In some parts *Cupressus sempervirens* succeeds well, and reaches a height of from 70 ft. to 80 ft., forming a handsome and majestic tree; it seeds abundantly and forms a valuable protection from the wind when planted in rows in bleak places, and for which it is well adapted. The Blue Gum Tree forms one of the prettiest evergreens in this locality, growing, as it does, 70 ft. high, pyramidal in shape, and very showy when covered with its curious flowers; it is being extensively planted in the neighbourhood of large towns, where its presence is said to exercise a peculiar sanitary influence. Beyond Cannes, towards Nice, the coast is very flat, and here the *Pinaster* is largely used for covering the sandy tracts which constitute a considerable portion of the shore. Further inland the Fig is extensively cultivated; the trees are grown in the form of standards on stems about 4 ft. high, forming large orchards in places where the soil is suitable for their cultivation. Under this sunny sky the Fig flourishes, makes well-matured, short-jointed growth, and annually carries heavy crops. Six or eight inches is the extent of their annual growth in this climate. The trees commence growth early in the year, and the hot sun, accompanied by a dry atmosphere, induces the wood to ripen early, which the soil in autumn also favours, and the result is a good set of fruit buds for the following season. As regards flowers, almost as good a display can be produced in villa gardens here in winter as can be obtained in some northern climates in summer.

R.

Brugmansia sanguinea as a Border Plant.—For a considerable time past the large trumpets of a magnificent specimen of this *Brugmansia* have been a conspicuous feature in the large conservatory attached to Marlfield House, near this town, planted out and depending from the supporting pillars and arches. Although perhaps a thousand blooms have fallen off, yet several hundreds are still there. My object, however, is to draw attention to this as a handsome and very desirable flowering shrub for a sheltered border, extending to it such treatment as one does to *Veronica*s, *Chamærops humilis*, the sweet scented *Verbena*, which with suitable protection live outside for years and give much greater satisfaction than with the most careful nursing inside. I do not presume to think anything like the magnificent specimen I am referring to will be produced out-of-doors under the most advantageous circumstances, but such plants are so scarce thus treated, that a reasonable amount of success would amply repay the experiment, say in sheltered garden borders richly prepared, in Ireland and the south of England. A gardening friend says the thing is impossible, but this is not so. I have seen them throwing up admirably healthy shoots from the base in one or two gardens near Dublin; and the author of "Ornamental Plants in Ireland" says, "I observed *Brugmansia sanguinea* coming up strongly after having survived several winters outside, in the marine gardens of Mr. John Bagwell and Mr. W. E. Gumbleton, near Queenstown, Co. Cork." He also says he observed it in Mr. Ellacombe's garden at Bitton, near Bristol. An excellent winter protector for the roots would be dry pulverised bog mould.—W. J. M., *Clonmel*.

Effects of the Winter.—The warming sunshine of the past week having given vigour to the sluggish life of the vegetable world, those interested in the power of plants and shrubs reputed to be hardy can now venture to report their local experience of the losses by frost during the past winter. The Victoria Park of this city and its adjoining gardens contains a large variety of shrubs and ornamental plants; it lies in a valley 100 ft. above the sea, and the original soil was a heavy clay, and its surface has been varied by artificial undulations. The list of killed includes almost all the clumps of *Pampas Grass*; of *Phormium tenax* very few remain; *Arundo conspicua*, *Escallonia montevidensis*, and *Escallonia macrantha* to the snow line, and *Laurustinus* where much exposed are dead. Scorched, not killed, and budding out—*Osmanthus aureus*, *Ceanothus azureus*, *Phillyrea* of all kinds, *Laurustinus* of both kinds (except where sheltered from the wind), *Eleagnus variegatus*, *Cotoneaster Simondsii*, *Euonymus* (all the broad leaved), *Myrtle* (Box-leaved), *Bays* where exposed to the wind, *Photinia serrulata*, *Raphiolepis ovata*, *Olea ilicifolia*, *Rhamnus Alaternus*, *Eriobotrya japonica*, *Chamærops Fortunei* (in its lower leaves), and *Azara microphylla* (slightly touched). Unscathed—*Osmanthus viridis*, *Garrya elliptica*, and round-leaved *Laurustinus*, except where they were exposed to cutting winds, *Bambusa Metake*, *Olearia Haastii*, *Bupleurum fruticosum*, *Magnolia exoniensis*, *Berberis stenophylla*, *Skimmias*, *Choisya ternata*, *Escallonia Phillipiana*, *Daphne Mazelli* and *indica*, *Hymenanthera crassifolia*, *Euonymus radicans variegatus*, *Eulalia japonica*, and the small-leaved *Veronica*. All the *Fir* tribe are injured except *Cedrus Deodara*, some plants of which look as if they would not recover. The deciduous trees and shrubs do not seem to have been at all injured.—J. B., *Bath*.

The Winter in Nebraska.—We are 600 miles from the Rocky Mountains. Of Conifers, about which enquiries have been made, there is nothing except *Juniperus cœrulea*, a beautiful silvery tree; *J. occidentalis aurea*, shrubby and gold-tipped; *J. prostrata*, and a variety which is lemon-yellow in winter. Also on the western slope we find *Thuja occidentalis*. I should have been tramping through the mountains weeks ago, but the weather has been too severe; we are still covered deep with snow. I presume seventy-five to one hundred thousand cattle have perished in this State from the storms of winter; for the past ten years they have been increasing largely, and found abundance of food on the dried grasses of the plains. Our native grasses, cured in that dry climate which is usual in autumn, furnish excellent pasturage all winter. Peaches are killed, but Apples, Cherries, &c., all promise to produce large crops this year.—J. T. ALLAN, *Lincoln*.

A Beginning.—We alone and for years pointed out clearly the unsatisfactory and pretentious character of the design in front of the Palm house at Kew. It was the type of the geometrical gardens so common now and which was accepted as the *beau idéal* of fine art in flower garden design. This is what we read of it in the last issue of a contemporary who was not sparing of praise of the same garden in days gone by, and had coloured illustrations of the somewhat similar Kensington Garden: "IMPROVEMENTS AT KEW.—The miserable little beds which for some years past have offended the eye in front of the great Palm stove at Kew have lately been turfed over, greatly to the improvement of the general effect. The expanse

of green turf forms a far better base for the fine lines of this monumental conservatory than the wriggling impertinences which detracted from the dignity of the building, and destroyed all sense of what artists call repose."

THE GARDEN FLORA.

PLATE CCLXXXIII.—CACTUS DAHLIA.

(D. JUAREZI.)

THIS Dahlia, as the accompanying plate shows, is one of the most important flowers which has been introduced of late years, and it is the more desirable because of its easy culture, requiring, as it does, no different treatment from that given to ordinary Dahlias. Its history reads like a romance. In the year 1872 Mr. J. T. Van der Berg, of Juxphaar, near Utrecht, received from a friend of his in Mexico a small case containing different kinds of seeds, bulbs, and flower-roots. The case was a long time on the journey, and the contents arrived in very poor condition; the seeds were mixed, part of them had germinated and were spoiled, and the flower-roots were rotten. However, he kept all that were in tolerable condition, and carefully awaited the result. At last from a small tuber a tender shoot developed itself, which soon proved to be that of a Dahlia. It being then winter, cuttings only could be made of it. Great care was taken of the young plants, and the result was that a few were saved in the spring of 1873. When planted out in June in the open ground with other Dahlias, these flowered at the same time, and everyone who saw them were delighted with them on account of their size and shape, and with the vivid colour of the bloom, equalling in that respect even the scarlet Poppy itself. In 1874 it was sold to one of the leading French houses; after that it found its way into Holland, where it was grown by Messrs. Ant. Roozen & Son, of Overveen. To Mr. W. H. Cullingford, of Phillimore Gardens, Kensington, we are indebted for its introduction into England. He purchased it of Messrs. Ant. Roozen & Son, and grew it for a year or two without any knowledge of its rarity. Mr. Cannel, to whom he gave plants, exhibited it at South Kensington, where it created quite a sensation, and was at once called, as it is called by everybody, the Cactus Dahlia, from its general resemblance to that flower. It is commonly known as Y. Guarezi, but the right name is the one we have given it, as Mr. Van der Berg called it Juarezi after Mr. Juarez, who was the President of Mexico, its native place. We are not aware that any seed has been produced from it in this country, but should seed, by hybridisation with the single Dahlia, be obtained, we may look for a very peculiar class of flower, as distinct from the ordinary Dahlia as the Japanese *Chrysanthemum* is from the original *Chrysanthemum*.

Lilium auratum.—Six years ago my employer planted a bed of *Lilium auratum* 12 yds. long and 4 ft. wide with some thirty bulbs, which have remained undisturbed since then. They have improved year by year, and last year several of them had fine spikes, each furnished with thirty or forty flowers. This year they have pushed up stronger than ever, and promise to make a gorgeous display. The only protection they have received has been a covering of 2 in. of leaf-mould, which was removed in the spring. The aspect of the bed is south, sheltered at the north by some tall Spruce trees, and on the south by some tall Limes, so they are quite shaded in summer, while in winter and spring they get the benefit of the sun's rays.—J. S., *Langford Park*.

Hardy Primroses.—Last year I got a packet of Primrose seed, and I now have a bed of every shade of crimson, mauve, magenta, and other lovely colours. They have been out all the winter, without any care or protection, and now, owing to the genial showers and fine weather, have fine long stalks. If seeds were sown now in a frame or greenhouse, the plants raised from them would bloom by this time next year.—M. A. G.



DAHLIA 'LAFLEUR' (YUAEZIL)

ROSA SIMPLICIFOLIA (BERBERIFOLIA).

A *ROSE* with simple leaves, like a *Rose* without thorns, will be a novelty to most persons, though the one in question was originally introduced into this country nearly a century ago, and has been re-introduced several times since. Unfortunately, it has received several names, two inadvertently, two purposely. *Salisbury* named it *simplicifolia*, and about a year afterwards *Pallas* described it under the name *R. berberifolia*; and on account of its differing from all other *Roses* in its simple leaves, some botanists have regarded it as the type of a distinct genus. *Hulthemia berberifolia* and *Lowea berberifolia* are its other synonyms. Some forty years ago it was figured in the "*Botanical Register*" (plate 1261) under the latter name. This singular yellow *Rose* inhabits the saline plains of Northern Persia and Soongaria, where it is so abundant, and other fuel is so scarce, that it is used for heating ovens. It is a shrub from 2 ft. to 3 ft. high, abundantly armed with prickles, and producing suckers in profusion. The flowers are about the size of the *Banksian*, solitary, bright yellow, with a



Rosa simplicifolia (syn., *R. berberifolia*).

deep purple spot at the base of each petal. This interesting plant, which flowered lately in the Cheshunt Nursery, does not succeed well, it is stated, in this country, because it requires a more sunny clime. It is recorded that *Rosa Hardyi* is the issue of a cross between this species and *R. clinophylla*, the former furnishing the pollen. This hybrid resembles its mother in its compound leaves and large stature, and its father in its ternate prickles, and especially in its yellow flowers, whose petals bear a brown spot at the base. W. B. HEMSLEY.

Roses and the Frost.—*Banksian* *Roses* are generally killed outright, or so much cut up that there will be but little bloom on them this year. *Chinas* are also in much the same plight; but our main supply of dwarfs on their own roots, *Hybrid Perpetuals*, *Bourbons*, &c., are all right, for the snow kept them safe near the ground line, while those that were elevated, even with the shelter of a wall, are greatly injured. I am glad to find that many *Rose* growers are coming round to the notion that there are other ways of growing the *Rose* besides that of standards, the fate of which a few more such winters will certainly settle.—J. G.

THE FRUIT GARDEN.**FRUIT CULTURE FOR PROFIT.****Cherry Orchards.**

The *Kentish* orchards, when in bloom in spring, are a pleasant sight, and in favourable seasons, when the branches of the trees are borne down with fruit in August, their appearance, at least to the owners, is pleasanter still. *Cherries*, like all other fruits in our climate, have to contend with cold, ungenial springs, and whoever plants a *Cherry* orchard, even in the *Maidstone* district and other favourite parts of *Kent*, should carefully select and prepare the site for it. *Cherries* must have a situation free from stagnant moisture. The best position for a plantation of them is on the side of a gentle declivity above the range of cold fogs. *Cherries* will thrive well in a stony soil if it be fertile; I do not mean gravelly soil, but land which contains a goodly number of boulders, having a smooth, water-worn appearance. I have noticed such boulders lying on the top of the land in some parts of *Kent* and elsewhere. The necessity for trenching the land as deep as it will bear has been referred to elsewhere, and is an essential condition for all fruit trees. Two-year-old trees, that is those which have been once cut back, are the best to plant, though older trees may move safely if they have been frequently transplanted. It is important for a *Cherry* orchard to be sheltered from the quarter whence come the coldest winds. Plantations of deciduous trees form excellent shelter, and should be planted, if possible, a year or two before the fruit trees are planted; then by the time the trees come into bearing the shelter will be high enough to render good service. Avoid in all cases deep planting, and stake or secure the trees from wind-waving as soon as planting is finished, and take care in tying the trees that something soft comes between the bark and the tie. A piece of old sacking two or three folds thick is lasting, and answers the purpose very well. The trees must be headed down in proportion to their strength the spring after planting. The distance at which *Cherry* trees should be planted apart must depend in some measure upon the character of the soil and the varieties planted. I have known trees of the *Waterloo* variety that would have been crowded at 30 ft. apart, but the *Bigarreau* on the same soil was none too thick at 15 ft. apart. The best plan is to plant thick enough and thin out afterwards, giving the most fertile and best trees the most room. *Cherry* orchards are best laid down in grass after the first three or four years.

Bush Cherries may be planted where space cannot be found for larger trees, but they will require lifting or root-pruning occasionally to keep them in a fruitful condition. The *May Duke*, *Late Duke*, and *Morello* do well on the *Mahaleb*, and require less lifting and root-pruning than some other kinds. The trees may be planted in beds or borders about 5 ft. or 6 ft. apart, where some temporary shelter could be erected on the windward side, projecting over the trees 2 ft. or 3 ft. like a coping to keep the blossoms safe in spring. It is not often the *Morello* is planted except against a wall, but though it does well in such positions, and may be used to fill up blanks anywhere, yet it is also a profitable *Cherry* to plant either as a dwarf on the *Mahaleb*, or as a standard tree in any position. The great object to keep in view in the case of dwarf *Cherries*, especially in rather strong soils, is to keep their roots near the surface; if they are permitted to run down the growth becomes gross, and they either do not produce blossoms, or else the blossoms are imperfect and fail to set. Whenever anything of this nature occurs the trees should be lifted and replanted in autumn. *Cherries* may be grown in pots, and the remarks I have made about *Plum* culture in pots are equally applicable to *Cherries*, and it is a most interesting way of growing them, keeping the trees under the shelter of a glass roof till the spring frosts are past, and then plunging them out, or a part of them, in a sheltered corner in the open air. It will, of course, be understood that trees in pots when plunged out-of-doors must be supplied during dry weather with water; and it may sometimes happen that such trees will require water even in a showery time. I have known cases in which potted trees when plunged outside were neglected because gentle showers fell frequently, and the person in charge took it for granted, without troubling to examine them, that they did not require water, when at the same time they were as dry as dust. The light passing showers made no impression on them; in fact, were cast aside by the foliage. All such trees should be mulched to check evaporation, and 2 in. or 3 in. of rich compost, or half

decayed manure, spread over the surface of the soil among the trees forms a beneficial dressing for them.

Cherries on Walls.—In most gardens a wall is set apart for Cherries, though the system of grouping together different kinds of fruits has some drawbacks. The advantage belonging to the plan is that any kind of fruit requiring special treatment can have its wants attended to better when grouped together than when scattered. And such fruit as Cherries that must be protected with nets to preserve them from birds are more easily covered when growing side by side than when separate. On the other hand, there is a decided advantage sometimes in having a tree or two in different aspects, as the May Duke in a sunny position will ripen its fruit a few days earlier than in a less favourable one, while north aspects may be utilised for retarding purposes. This is, however, a question that proprietors of gardens can decide for themselves. I merely threw out the hint because I have met with cases in which a dish of Cherries a few days earlier or later, as the case may be, was appreciated. To prolong the season of any particular fruit is sometimes looked upon as a test of skill, though it is often the result of mere accident. If I had a wall to plant with Cherries, and could take my own course, I should plant the best maidens I could get 7 ft. apart, and should train them as palmettes, allowing seven branches to each tree, laying a young branch at intervals between the main ones. Such a system covers the wall much quicker than any other. Of course time would be gained if young trees started in the nursery as horizontals could be obtained, but they cannot always be bought. The advantage of buying maidens is they cost less money, and one can adopt any system of training one likes. There is, perhaps, less necessity for laying in young wood in the case of Cherries (always excepting the Morello) than in that of other fruit trees, as Cherries bear so freely and well on spurs. But the fault belonging to the large old trees with which one sometimes meets is (especially if they are growing on heavy soil that has received but little preparation) the centre, in the course of time, ceases to bear, and many feet of wall become virtually barren. With a good broad border well prepared, warm, and dry, this, however, will not soon happen. I feel that the right course to adopt on indifferent soils or in places where the expense of border making cannot be allowed is to plant the trees closer together than is usually done, and keep the roots near the surface. Trees with their roots near the surface do not make gross shoots, which when cut back are converted into large ugly spurs that are often flowerless; or if a few blooms appear they do not set properly, and consequently fall off without ripening. Those who have such trees on their walls must of course do the best they can with them, and that is cut out every alternate branch and fill the spaces thus left vacant with young wood as soon as possible, avoiding overcrowding. In this way barren trees may be made fertile. The summer management of the Cherry in a trained condition on walls consists in stopping the young wood, beginning towards midsummer, and cutting back to about four or five leaves. In summer pruning some cut the young wood back too close, not only in the case of Cherries, but also in that of other fruits, and, as a consequence, the buds that might in due course be converted into flower-buds are compelled under the excitement of vigorous root action to burst into growth. If another leaf or two had been left on the spurs a little more scope for root action would have been left, and at the worst only the buds at the extreme end of the spurs would break; the others at the base would remain dormant, and if sun and air had free access to them something useful would be the result. There is an advantage in dividing all summer pruning, whatever the fruit tree may be, into three periods, doing the top first, then the centre, and lastly the bottom. Thus the top, which is usually the strongest, is denuded of its foliage first, and the bottom, which is nearly always the weakest, by being allowed to carry its surplus foliage a fortnight longer, draws to itself a larger portion of sap, which materially helps to preserve the balance of the tree. The winter pruning of the Cherry consists in shortening back the young wood left as spurs and cutting out all dead and useless spurs. The young trees that have space to fill up may, if their roots are near the surface, have their shoots laid in full length, and thus the wall will be more quickly covered.

The Morello is usually employed for furnishing north walls, not because it does not succeed in any other aspect, but it thrives so well in all inferior positions where choicer fruits do not ripen well,

that some have been led to consider a north wall necessary for its culture. It will, however, grow in any position, and I have already adverted to its use both as a standard and also a pyramid on the Mahaleb stock; in short, the Morello will thrive wherever other Cherries do well. In its growth and mode of bearing this Cherry somewhat resembles the Peach. It has the same slender flexible branches, and produces its blossoms, if the wood be strong and firm, in the same way; indeed, in most gardens, the Peach tree is taken as a model for the Morello, and I do not think any better system of training or pruning can be suggested. I have seen Morellos occasionally spur-pruned like other Cherries, but the trees have not to my mind been satisfactory. Their branches should not be too much crowded. More and better fruits will be obtained by training the bearing shoots not less than 4 in. apart than when, as is commonly done, they are laid in much thicker. The disbudding and thinning should be done early, and those left for bearing should be tied or nailed in or be fastened back to the wall by means of slender twigs of Privet, or of any other tough shrub. The same plan is often pursued in the case of Peaches, and it saves material and avoids driving nails into the wall, which would have to be drawn out again in autumn.

E. HOBDAV.

THE ORCHARD HOUSE.

THE present season has so far been exceedingly trying to fruit trees against ordinary garden walls, and has again proved the value of a good glass covering; for although cold as the weather has been during the greater part of April, particularly during the latter part of it, the unheated orchard house will, under proper management, be found to have afforded the necessary protection to the unfolding blossoms of the various kinds of trees contained in it, whether in pots or planted out in beds or borders, *i.e.* if proper care has been taken in husbanding as much as possible solar influences, by closing early and keeping the blossoms dry during the various and very considerable depressions of temperature which have been experienced during the most critical period of their development. To ensure as far as possible this condition, all necessary watering should have been performed during the early part of the day, and great care observed as to the admission of air, which should still be admitted on the lee or sheltered side of the house, or only by the roof ventilators, so as to avoid anything like a draught of cold, cutting wind, which is exceedingly injurious to the health of the trees, as well as to their crops in all stages of their development, and more especially so when the blooms are being unfolded. If all has so far gone on satisfactorily, most of the trees will now require attention in the way of disbudding, thinning out the young fruit, &c. Apricots will most likely be the first to claim this consideration; their fruits are apt to set in close clusters, and these should be to some extent thinned out, trusting to a second or final thinning to furnish a portion of fruit large enough for culinary purposes, should such be desired, as when these trees are grown in pots, which will mostly be the case, it is not advisable to allow them to weaken themselves by bringing a very heavy crop of fruit to even that stage. All superfluous shoots should also be now rubbed off; and strong and very luxuriant ones, which it may be desired to retain may, if thought necessary, be stopped so as to encourage as much as possible the development of weaker, but suitably placed shoots towards the lower portions of the trees, so as to secure well balanced specimens. Peaches and Nectarines will also now require disbudding, so as to prevent the formation of more wood than is necessary or required, and at the same time the fruit should be carefully thinned out, always leaving those best placed so as to distribute the crop as regularly as possible over the trees, always bearing in mind that a very heavy crop means small and comparatively flavourless fruit. As to the number of fruit, however, which any given tree should be allowed to carry, the cultivator must necessarily be guided by the dimensions of the tree and its condition. A strong-growing, luxuriant tree may with advantage be allowed to carry a heavy crop, if such be produced; but to allow a weakly tree to bear all the fruit which it may appear inclined to do, is only to facilitate and ensure its rapid decay. It has been said that Nature never errs, and that no more fruits will be formed than a tree is capable of bringing to maturity. This doctrine, however, although it may appear to be right in theory, will not be found to answer in practice, particularly as regards fruit trees under glass. Plums generally set their fruit freely under glass, and when fairly set, if the crop is considered to be too heavy, the fruit should be thinned carefully out with a pair of scissors. The Cherry, possibly; sets less freely than the Plum, but the same advice may be given as regards the thinning of the fruit when it is considered necessary also as to the stopping of over-luxuriant shoots, with the view of en-

couraging the development of weaker and desirably placed ones. Pears do not always set their fruit so freely under glass as could be desired, and it is advisable when their blooms are unfolded to keep the atmosphere of the house somewhat dry, and to assist the distribution of the pollen by the aid of a small brush.

In a structure in which several kinds of fruit trees are growing it is, of course, impossible to furnish each variety with the precise conditions at all times most suited to it; the only alternative is to compromise matters as judiciously as possible. But when all kinds of fruit are fairly set the atmosphere of the house should be kept moister than previously, and the trees should be assisted by all possible means to swell their fruit. In order to promote this they should be syringed morning and evening, unless the nights are likely to prove cold, when the afternoon syringing may with advantage be omitted. The water used for this purpose should not, if possible, be of a lower temperature than that of the atmosphere of the house, and if slightly higher so much the better. Copious root watering will now be necessary, particularly in the case of trees growing in pots or tubs, as anything like neglect in this respect may at once frustrate the labours of an entire season. The surface dressings given in October, or when the trees were placed in the structure, will not yet be quite exhausted, but so soon as this appears to be the case they should be renewed, and in the meantime doses of well-diluted liquid manure may be occasionally administered with advantage.

Many of the artificial garden manures have a very remarkable effect upon the productive powers of fruit trees whose roots or feeders are restricted or confined to the limits of a pot, and amongst these few are of more value than soot-water. Rain water contains soot; its strength, too, in this respect is readily increased, and there is little danger of making it injuriously strong; while in addition to its ascertained fertilising properties, it speedily drives away earth worms and similar pests from the soil.

Where Vines are trained over the paths, or in other suitable situations in the orchard house, they will now require attention in the way of disbudding, taking care to always leave the strongest and best-placed shoots, which should be stopped at the joint next to the embryo bunch. As soon as the shoots will bear it, they should also be neatly tied in to the main stem or rod, or to wires fixed for this purpose.

If the house contains Strawberry plants in pots, placed on shelves or elsewhere, they should be removed as soon as the fruit is gathered, as they are apt to be attacked by red spider, which, if not prevented, will spread from them to the Peach and other trees. If constant syringing, say, at least once a day, does not prove effectual in preventing anything like development of aphides or thrips, fumigation with Tobacco in some form must be resorted to, or the ends of the young shoots infested may be repeatedly dipped in strong Tobacco water or dusted with snuff or Tobacco powder; but fumigation is by far the most effectual, and an efficient fumigator is indispensable. Cherry trees in the open air, and still more so under glass, are terribly subject to the attacks of the black or Cherry fly, an insect exceedingly difficult to kill. It will, however, yield to repeated fumigations. Plum trees are very often infested by a small light blue aphid, but from this they can generally be freed by a vigorous use of the syringe and cold water. The leaves and young shoots of the Pear are likewise frequently injured by a small leech-like insect, and this should be washed or rubbed off with a sponge moistened with Tobacco water.

P. GRIEVE.

Orchard Street, Bury St. Edmunds.

STRAWBERRIES IN SMALL POTS.

It is a mistake to suppose that large-sized pots are necessary for the production of good Strawberries. I have proved that the finest of fruit may be grown in $4\frac{1}{2}$ -in. pots, or even in a size smaller, and for early forcing I would advise that these dimensions be not exceeded. The necessity for getting the soil of pot Strawberries thoroughly packed with fibres by the autumn is so universally admitted, and has been so often urged, that I need scarcely say anything upon that part of the subject, but I would remark that in many instances the grower would more certainly insure this desirable result, as well as the complete and early ripening of the crowns, by limiting himself to the employment of pots somewhat smaller than those generally used. It often occurs that through press of work the layering of runners is not taken in hand so soon as it should be, the consequence being that the runner, being laid late in a comparatively large body of soil, does not fill the same with roots, and the crowns never mature as they ought to do. How often do we hear complaints of blindness in pot Strawberries, whole batches of plants either throwing up no fruit at all, or doing so in an imperfect manner. Too high a temperature will certainly induce blindness, especially should the season happen to be dull and sunless when the plants are introduced into

heat, but in many cases the evil may be distinctly traced to over stimulation in the latter end of the growing season. Free growth there must be, but the same must be hardened and ripened, and this cannot well be the case unless the soil becomes one mass of healthy, active roots by the early autumn. Speaking to a market grower upon this subject, he remarked that in the sunless summer of 1879 nearly all his largest and finest plants failed to show fruit, and, said he, "I do not know what I should have done had I not had a quantity in $2\frac{1}{2}$ -in. pots; all of them threw up well and gave me a good crop of fruit." Most Strawberry growers are aware of the difficulty that is often experienced in properly gauging the amount of water to be given to pot Strawberries in their earlier stages of growth, and what disastrous results ensue from an overdose of moisture at the roots at that time. Now the greater the body of soil, the greater the liability to disaster, and *vice versa*, so that common sense should tell us that for early work, when the sweetening influence of sun and air upon the soil is but rarely felt, small pots should alone be used. A plant in a 6-in. pot may easily be irretrievably ruined, but the most inexperienced will scarcely succeed in damaging one in a $2\frac{1}{2}$ -in. pot. As to the quality of the fruit, your readers may rest easy upon that point, for some of the best Strawberries that ever entered Covent Garden Market were grown in $2\frac{1}{2}$ -in. pots.

J. C. B.

CULTURE OF FIGS IN POTS.

NEGRO LARGO is one of the best black Figs for a general crop, and a very prolific bearer it is. It is now rapidly making its way to the front, and becoming one of the most popular varieties grown. It is better adapted for pot culture than for planting out in borders, except where the roots can be confined to a certain space. When treated as a pot tree it makes much shorter-jointed and better-matured growth, on which the earliest and most valuable crop of fruit depends. Where there is fire-heat, especially bottom-heat, the Fig is a very easy tree to propagate, from eyes or cuttings put in in January or February. They should be potted on into 6-in. pots, which will be quite large enough for the first season, as they will fill these with roots, and consequently ripen their first year's growth well. If pyramid trees are required, stop the cuttings after they attain the height of 8 in. or 10 in.; but if for standards, do not stop them the first year, train them to a stake, and they will make a growth of about 4 ft. Then by the removal of the terminal bud the following season, a finely-shaped standard will be the result. If a brisk heat can be maintained, the young trees will carry a second crop the second season; but rather secure good trees, and fruit them the third year, when they should be large enough to carry good crops. Those who do not possess the advantage of artificial heat may also grow one good crop of fruit every season. Fine Figs of good flavour can be grown in ordinary brick or wooden pits, 4 ft. or 5 ft. high, if fully exposed to the sun. The best plan for cold pit culture is to confine the roots entirely to the pots, and not allow them to root over the tops, as that would stimulate the trees to make a stronger and later growth, which is not required where only one crop is to be reaped. Repot every season before starting; 12-in. pots will be large enough when the tops are kept restricted to a limited size; root-prune according to the quantity of roots. It is better to remove a portion of the roots than to push them into the pots in masses. Use good rough loam of a clayey character, if possible; to this add some old lime-rubble, burnt clay, or charcoal, broken into pieces the size of Walnuts; drain the pots well, and place some rough loam or Moss over the drainage. The beginning of May will be early enough to start them. Give plenty of air, and do not keep them too hot during the daytime; syringe, and close up with sun-heat as the crop advances, and feed with liquid manure when the pots get full of roots. After the fruits are gathered, let the atmosphere be warm and dry to ripen the wood, when the trees may be removed and plunged in a light, dry shed, and in severe weather protected with mats, or they may be left in the pits, and a few more inches of material added, so that the pots may be buried 2 in. or 3 in. deep, which will keep the pots and roots secure from frost. Two good sorts to form dwarf trees in pots are Black Bourjassote and White Ischia.

R. G.

PEARS FOR ROUGH CLIMATES.

MR. R. MULLER, of Praust, by Dantzic—a very cold European latitude—directs attention to a few good sorts of Pears which are grown there with exceedingly good results. The sorts which he more especially recommends are the following:—

Zephirin Grégoire, obtained from seed by the well-known Pear raiser, Grégoire, of Jodoigne; fruit of moderate size, top-shaped and sometimes round; a first-class Pear, ripening from November to January. The tree is regular in habit and very fruitful, growing equally well on the Quince and Pear stock, and it can be trained as espalier, pyramid, or cordon.

Nouveau Poiteau.—The fruit of this excellent sort is long, light green, and large; it is thickest at about two-thirds of its length from the stalk, and tapers off then towards the eye. Anyone having seen the fruit once would easily recognise it again. It is a Pear of the first rank, but in chalky soils it is sometimes only second-rate. It is ripe from the end of October to the end of November. The tree is a strong grower, making beautiful pyramids of extraordinary fertility. It can be recommended as a fruit that remains good to the last and never becomes doughy. Notwithstanding the large size of the fruits, they sit so closely on the branches as not to be easily blown off by the rough winds of that part of the country.

Laure de Glymes.—Fruit middle sized, but at times small, bluntly conical, sometimes somewhat rounded; on the tree light green, but when ripe yellowish; flesh white, very juicy, and possessing an aromatic flavour; ripe from the middle of October till the end of November, and when quite ripe it can be crushed on the tongue. The tree is very fruitful and the growth robust, but in spite of that the summer growth shows an inclination to form fruit buds.

Beurre Payen.—This sort originated with M. A. Papelen, in Ledeberg, by Ghent. Notwithstanding its being classed by MM. Van Houtte and André Leroy as a table Pear of the second class, it is well worth planting in rough climates. The fruit is middle-sized, long, almost bottle shaped, and on approaching ripeness becomes yellow; flesh whitish-yellow. Van Houtte describes it as half melting, sugary, and slightly musky. I have found the fruit to possess a very good flavour. This sort can be recommended for its uncommon fruitfulness. It makes handsome standards and pyramids on the Pear stock.

SYLVESTRIS.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Improved Pruning and Training.—I agree with your correspondent who says (p. 412) that "tying stones to branches to make them fruitful is not an original idea." I can well remember a Pear tree in the garden of which my father had the management forty years ago having the branches drawn down with cord and fastened to pegs driven into the ground. At the same time and place, too, other trees, which were considered to have branches growing too straight and strong, were brought down, weighted according to their requirements with bricks or stones suspended to them with cord.—JOHN COLE MCARDELL, *Torquay*.

The Ostheim Cherry, belonging to the Morello class, seems to be an excellent kind to plant extensively. It is very prolific, a late bloomer, and grows from cuttings as easily as a Doucin Crab or from layers, so that it is amenable to all styles of growth and training; therefore, as a bush for small gardens, on its own roots, or worked low on *Prunus Mahaleb*, or grafted high, for field or orchard culture, on the wild Cherry stock, it can be highly recommended to the notice of fruit growers.—SYLVESTRIS.

Apples and Pears not Setting.—Can any of your readers throw any light on the following?—I have an orchard of several acres, now planted about ten years, and for the last four years I have had no crops whatever, although previous to that time, when the trees were much younger, I had a fair quantity of fruit. The trees have made vigorous growth and appear to be perfectly healthy, and are covered with bloom in the spring, but it never forms into fruit, or falls off immediately after it is formed. I have numerous varieties of both Apples and Pears planted, but the only kind of the former that bears anything is a tree the name of which I do not know, but it bears a small red Apple, and the only Pear that bears is the Moor Fowl Egg. The soil is stiff clay of great depth, and the situation high and well drained.—AMATEUR.

SEASONABLE WORK.

Peaches and Nectarines.—The stoning process in the early house being complete, make the final thinning of the fruit, and stop all gross shoots to increase its size. Tie the young wood to the trellis, but guard against crowding, and elevate the fruit on pieces of lath as the work proceeds. Continue syringing with clear soft water free from lime, ventilate freely, close with a strong growing heat on fine afternoons, and re-open the ventilators about 7 p.m. Give inside borders a liberal watering with tepid liquid, and cover with some light non-conducting material that will keep in moisture until after the fruit is gathered.

Succession Houses.—To an inexperienced eye the fruit in the second house will be as forward as that in the first, but the trees have a trying period, that of stoning to go through, and until this process is complete hard forcing must not be attempted. A night temperature of 55° to 58° with a rise of 10° by day and 5° more after closing, will result in the production of the finest fruit without distressing the trees. Well made and drained borders will now take heavy waterings, and good syringing is of the greatest importance. Gradually uncover the external borders on which the roots of trees in late houses are

established. Disbud, heel down young growths, and thin the fruit freely, as there is little danger of healthy trees casting their fruit. Examine the outside borders if they have not been covered, water if necessary, and mulch with short manure.

Figs.—The fruit on the early pot Figs will now be ripening, and, like all other forced fruits, will be improved by full exposure to sun, light, and warm air. If the roots have been well top-dressed, mulched, and watered, avoid heavy soakings when a quantity of ripe Figs are hanging on the trees, and make up for the loss by giving warm water and washing with the syringe when the fruit has been closely gathered. Pinch side shoots to the fourth or fifth leaf, expose ripening fruit by turning the leaves aside, and coil terminals forward without stopping where there is room for extension.

Successions.—Where well managed invariably show more fruit than they can carry, and having a tendency to resent imposition by casting their crop, the amateur is apt to facilitate matters by putting off thinning until the mischief is done. The principal routine is liberal treatment in the way of stimulants, moisture and heat, good syringing backwards and forwards twice a day, and heavy mulching to keep the roots near the surface of the border.

W. COLEMAN.

TREES, SHRUBS, AND WOODLANDS.

THE BLACK AUSTRIAN PINE.

(*PINUS AUSTRIACA*.)

THE foliage of this Pine being thickly set on the branches and very deep green, renders it strikingly dark in colour, in some trees almost black, hence its name; and as it varies in this respect from seed, the darkest have in some cases been collected and distributed under the name of *Pinus nigricans*. In common with several of our best known Pines, it belongs to the two-leaved section, but with only one of them is it liable to be confounded, viz., *Pinus Laricio*, the principal points of difference being the stiffer and



Pinus sylvestris.

darker green foliage of *P. austriaca* and a greater distance between the whorls of branches, which are mostly unusually large for the size of the trunk, a circumstance rather against it as a timber tree, the knots in the wood being so large. This truly noble Pine is now largely planted, thriving, as it does, in almost any situation

that is well drained. On exposed hillsides in good soil, or in loose, shifting sands by the sea it is alike at home, and for depth of colour in masses is unequalled. For isolated specimens, again, it is well adapted. When young it forms a dense pyramid, but as it grows older it gets opener. It is a native of the mountainous parts of Austria, attaining there a height of from 100 ft. to 120 ft., and forming when full grown a large flat-topped tree with rugged brown bark, of a much deeper colour than that of the Scotch Fir. In company with *Picea pectinata* the lower parts of the hills are covered with it, but in the more elevated districts the Silver Fir disappears, leaving the Pinus in undisputed possession. Another of the two-leaved section is the Scotch Fir (*Pinus sylvestris*), which forms a

attached to each other, so as to make them look as if single; by twisting them, however, they become detached and separate into two; variegata, which, unlike most variegated Pines, is as free and healthy-growing as the normal type, the green leaves being interspersed with straw-coloured ones; aurea, a close compact kind, green in summer, but during the winter of an intense golden hue—in fact, at that season one of the brightest of golden-leaved plants. Both the Austrian and Scotch Pines are largely planted as nurse trees for other and more delicate subjects, a purpose for which they are well adapted, as they brave with impunity the storms and winds incidental to exposed situations.

ALPHA.

OUTDOOR CAMELLIAS IN CORNWALL.

Of all evergreen winter-flowering shrubs or trees, none excels the Camellia. Laurustinus and similar shrubs have been more or less injured by last winter's frosts, and it would be unfair to say that the Camellia is entirely unhurt, but it has sustained no injury worth notice. In Cornwall one occasionally comes across the Camellia as a wall plant, sometimes in groups, and very often in the form of single specimens. The most remarkable, and perhaps the largest and best grown, Camellia in Cornwall is at Penalvern, near Penzance. This tree is about thirty-five years old, 57 ft. in circumference, and 15 ft. in height, beautifully grown and well proportioned. It is a very fine Rose Anemone-flowered variety called Florida, and somewhat late in flowering. I am not surprised at the Camellia being hardy in our climate, seeing that it comes from Japan, whence we get such hardy subjects as the Aucuba, Weigela, Maiden-hair tree, various Conifers, and hosts of other things all hardy in this country. For out-door culture the following may be selected, viz., the old Double White, Apollo, a white kind, with flowers often 4 in. in diameter; altheæflora, a large Anemone, centred, red sort; Donckelaari, mottled, light red, double striped, perhaps the first double Camellia imported into this country; Florida, just referred to; Jubilee, a very large, white, lightly speckled with rose; Lady Hume's Blush; myrtifolia, red; Marchioness of Exeter, Queen Victoria, tricolor imbricata, Woodsii, and others. In short, so handsome are all Camellias, that it would be difficult to make a bad selection. Mr. Marnock's remarks (p. 413) are very interesting; "prevention is in all cases better than cure," and, therefore, to prevent stem-splitting in the case of fine specimens, straw bands should be wrapped around their stems about the end of September or in October. I have, however, never seen or heard of stem-splitting in Cornwall, and we have had 12° of frost. It is too late this season for Mr. Marnock to visit this part, but if he did so next year early in April, he would, I am certain, be well repaid.

W. ROBERTS.

Penzance.

THE HYDRANGEA AND ITS VARIETIES.

THOUGH the common Hydrangea is a free grower, and almost a gross rooter, it is not fit to contend with Portugal Laurels, Box, Lilacs, and other shrubs. Under such circumstances it too often has the worst of it, or is altogether crippled or destroyed; but give it a bit of fairish good ground all to itself, and it will grow into a shrub—a tree almost. Plants may be met with in some parts of England 10 ft. through, and 5 ft. or more high. Such plants will produce from 300 to 700 heads of flowers in the season. But these instances are cited more as examples of what the Hydrangea can become than such as one should aim at. Plants 1 yd. high and a little more through are more useful in most gardens than such bushes. Even in cold seasons and localities a little ashes, spent tan, or litter round the roots and lower branches of Hydrangeas will prove quite sufficient to protect them from the weather. In the case of larger plants a few branches and a little straw may be added to shelter the higher portions. About the middle of May all this protection should be removed, the dead portion of the stem cut off, and the top generally moulded into shape. Seldom, however, is much pruning needed, as the plants naturally assume the habit of a dense bush—the form best adapted for Hydrangeas. In mild localities and sheltered positions the Hydrangea needs no protection. An occasional thinning out of the weaker branches in the top and a top-dressing of thoroughly decomposed manure is almost all that is needed to keep Hydrangeas in robust health and in full flower for years. The most prominent buds on the stem are those that hold the largest flowers in embryo, and consequently these should always be carefully preserved.

In addition to the old pink Hydrangea, which may be pink or blue, according to the soil in which it is grown, there is now a pure white



Pinus austriaca.

familiar and at the same time striking object in the landscape. It has a wide geographical distribution (being found more or less throughout Europe) and, owing to its growing both in the lowlands and in mountainous districts, the varieties of this Fir are almost endless, and besides the timber trees, of which there are several claiming to be distinct, we have two or three well marked kinds, viz.: pendula, a very distinct weeping Fir; nana, a mountainous variety, growing only 2 ft. or 3 ft. high, but spreading out horizontally; monophylla, a sort in which the leaves are

strain of this favourite variety, and *Hydrangea japonica* is also a very distinct and desirable sort, the centre of the bunch of flowers being undeveloped, and these tiny flowerets being surrounded with others of about the usual size, form, as it were, guard petals to the centre flowerets. These outer petals are also mounted on rather long footstalks, which give them a peculiarly elegant and striking appearance. The silver-leaved variety of *japonica* is one of our best silver-leaved variegated plants, altogether apart from the beauty of its flowers, though it flowers as freely and grows as well as the plain leaved variety. *Imperatrice elegantissima* is a new golden variegated *Hydrangea* of the highest merit. *Paniculata* and *p. grandiflora* are also noble varieties, with immense panicles, or bunches of flowers. While for those who love double flowers there is now the *Hydrangea stellata* fl.-pl. None of these varieties are expensive, while few plants could prove more effective in the filling up of sheltered nooks and corners, or for forming striking specimen plants, or permanent groups on the lawn. One of the most striking things ever seen by me was a huge mass of the common *Hydrangea*, the entire centre being of the usual pink colour, and the border—all to a plant—of the so-called blue, or lead-coloured variety. On searching for an explanation of a change of colour so complete, it was found that the centre plants were all in loam, and the outside ones in peat. It should be stated, however, that there are peats and peats innumerable, and that all peats have not the same effect on the colour of the *Hydrangea*.
D. T. FISH.

TREE AND SHRUB NOTES.

THE *Rural New Yorker* has recently published a number devoted wholly to trees and shrubs, and a very interesting and useful number it is; we abstract from it the following—mostly concerning things which the writers have means of observing not open to us on this side the Atlantic.

The Live Oak (*Quercus virens*).—A majestic tree and king of the forests; holds the first rank. Unfortunately for the interests of horticulture, its habitat is rather restricted, and beyond the damp, rich soils of the southern seaboard it seldom attains its imperial proportions. The shape and form of this tree are peculiar. With a trunk sometimes 4 ft. to 5 ft. in diameter, it rarely reaches beyond 50 ft. to 60 ft. in height. The trunk soon becomes forked and divided into gigantic limbs, which extend on all sides around the base, almost touching the ground, and covering a space of 50 ft. or 60 ft. in height. The trunk soon becomes forked and divided into gigantic limbs, which extend on all sides around the base, almost touching the ground, and covering a space of 50 ft. or 60 ft. in diameter. The upper portion is again subdivided, until the main axis of growth is scarcely recognisable, the whole tree forming a compact, oval, or rounded head. In the vicinity of Charleston, for some fifteen or twenty miles around, there are many magnificent avenues of these trees, considerably over 100 years old, planted out in colonial times by the wealthy proprietors at their country seats. Some of them are nearly a mile long, and consist of four rows of these veterans, throwing out their huge limbs on all sides, and intercrossing each other so as to form a dense shade. These trees are the favourite resting-place of the long Moss (*Tillandsia*), and are often so much covered with this long, gray drapery as to present a sombre aspect at a distance.

The Big Laurel (*Magnolia grandiflora*).—This splendid tree, with its thick, glossy leaves and huge white, fragrant flowers, attaining a height of 60 ft. to 80 ft., is one of the finest evergreens known. Its native range is along the seaboard, from North Carolina to Florida, and beyond the Mississippi into Texas; but it is now in cultivation all through the South, and improved varieties are already known. Unlike the Live Oak, it has a bare, smooth trunk, and a regular pyramidal head. I have seen splendid specimens of this tree in the neighbourhood of Darien, Ga., in Florida, and in Texas, near Houston, with trunks 2 ft. to 3 ft. in diameter.

Wild Orange—Wild Olive (*Cerasus caroliniana*).—This favourite evergreen is extensively cultivated along the Atlantic States. Though not as large as the Live Oak or *Magnolia*, rarely exceeding 30 ft. or 40 ft. in height, it is so easily propagated by seed, and of such rapid growth, that its cultivation has extended all over the country, and in certain sections one will find every homestead surrounded with trees of this kind. It bears excessive pruning and may be brought into any required shape. For tall hedges or any fanciful form it is peculiarly adapted. The rich, glossy leaves in winter, with racemes of white, pendent flowers in early spring, give it a cheerful aspect. Hedges or low-branching trees should be protected from cattle, as they are fond of the leaves, which, if eaten too freely, are poisonous. Although called Wild Orange, or Wild Olive, it has no affinities with either, but belongs rather to the Wild Cherry family.

Dwarf June-berry.—For five or six years we have had one plant of the Dwarf June-berry, Shad-bush, or Service-berry, a variety of the *Amelanchier canadensis*, viz., *alnifolia*. In its bloom it is fully as pretty as many of the *Spireas*, while in fruit it is an object of general interest, as well to grown people as to children and birds. It bears racemes of fruit nearly as large as Gooseberries, and in the same raceme the colour varies from green to green and purple, red, and a deep plum colour, according to the stage of ripening. The first ripen about June 1, and the berries continue to ripen during a greater part of the month. These berries are mealy and juicy, though rather insipid. Still—we eat them. The Shad-bush must be known to most of our readers, who can scarcely fail to have noticed its welcome white flowers during late April and early May along streams and low-lying woods. It varies so much that half a dozen different varieties are recognised. Among them is the Dwarf June-berry, of which we write. It is found in all of the Western States.

The Liquidambar, or Sweet Gum (*L. styraciflua*).—The very name has always had a charm for us, and there is that about the tree—in its star-shaped fragrant leaves; its queer corky bark; its shapely, elegant form—that heightens the charm and really inspires a feeling of attachment. It is found in moist woods from Connecticut to Illinois and southward, but our readers must not, therefore, conclude it will thrive only in moist soils. One of the best specimens we have ever seen grows in a sandy soil with a sandy sub-soil so little retentive of moisture that the grass burns up in the summer. In fact, it may be said there are no trees which will not grow to finer proportions in a well-drained soil than in one upon which water stands or from which it slowly disappears. The superb hues which *Liquidambar* foliage assumes in autumn have often been referred to. The sexes are in different flowers. This is not an easy tree to transplant. As in the case of the Tulip, young trees should be selected and, unless the roots are uninjured, the stems should be severely cut back.

The White Fringe Tree (*Chionanthus virginica*).—If but for the oddity and grace of its flowers we should find a place for one specimen of this large shrub, or little tree, among our collection. They are borne in loose, drooping panicles, and the linear petals, of a snowy whiteness, grow upon slender pedicels, so that the white, filamentous leaves seem to be floating in the air. The leaves are large and firm without a cleft or lobe. Our specimens have proved perfectly hardy here. It is found on river banks in Pennsylvania and southward.

Halesia tetraptera, or Silver Bell, is a symmetrical little tree or large shrub, which is found wild in parts of Ohio, Virginia, North Carolina, and southward. The white bell flowers droop from slender pedicels in small racemes, but they last for two or three days only. The stems of this tree are clean and shapely, the wood very hard, the bark grey and dark brown handsomely striated.

Standard Honeysuckles should not be omitted in any general collection. They are desirable for their leaves, some of which last until February; for their flowers, which are often fragrant; for their fruit, which in different kinds is black, red, and white. Ledebour's, Standish's, White and Red Tartarian Honeysuckles are among the best. The Honeysuckles, both vines and shrubs, are easily raised from seeds. Standish's bears sweet-scented flowers before the leaves appear—often, indeed, in mid-winter during warm periods.

Forsythia viridissima.—Among the sturdiest and worthiest of early blooming shrubs is this, the Golden Bell. Its long shoots remind one of Willow shrubs; its flowers, of our Dog's-tooth Violet. It begins to bloom here usually about April 20, before the leaf-buds break. It is in full bloom usually about May 1, when it resembles a bush of yellow stars. The flowers fade away about the middle of May, when the fine serrated foliage is fully developed. This lasts until early winter, changing to a deep purple.

The Japan Quince (*Cydonia japonica*).—Among the showiest of garden shrubs this is first for brilliancy, while the leaves are fresh, glossy, and green from early spring till after frost. In selecting the Japan Quince, our readers should choose the different colours as described in nurserymen's catalogues. There are pure white flowers, scarlet, dark crimson, and one (Mallardi) with crimson centre and white towards the edges of the petals. There is also a scarlet double-flowering variety. One of each kind, if planted in a clump, makes a brilliant contrast, while if planted here and there each is showy enough to command admiration for itself. For hedges as well as for the purpose of shutting out unsightly places, or for imparting an easily-maintained beauty to the less frequented parts of the grounds, this Japan Quince is almost unrivalled.

Kalmia latifolia, the Calico-bush, or Mountain Laurel, is found in damp woods or rocky soils from Maine southward. May we not call this the queen of the evergreen shrubs? The foliage is leathery,

dark green, and, if the shrub is properly pruned, rich and ample. The flowers are singularly constructed, and it is a remarkable fact that though everybody has seen, or gathered the flowers of the Calico-bush, very few have observed the peculiarities to which we refer. Near the top of the tube of the flower is a distinct line of crimson or rose. The anthers, upon curved filaments, rest in 10 cavities or little niches or pockets, which on the outside of the flower form, so many spurs, or protuberances. Above these pockets on the inside are 10 dark red spots. These spots and lines give it a calico look and have no doubt suggested the name. The anthers rest in the pockets while the flower is in the bud. When it unfolds, the anthers are carried outward and downward, which curves the filaments (stalks of the stamens) like a drawn bow, until finally the corolla has so far expanded as to liberate the anthers. They then shoot off, generally striking the stigma of the pistil with one or more pollen masses, thus pollinating it and accomplishing the first step towards the fertilisation of the ovary. We have seen the pollen projected from the anthers, from the elasticity of the spring, 2 ft. or more. It has been said that the liberation of the stamens at the right time for fertilising purposes was due to insects in search of honey. But anyone who will watch and wait among blooming *Kalmias* will find that they will all shoot and project the pollen without the insect aid. The colour of the flowers varies from white, through rose, to light red. The buds are generally of a deep rose colour, $\frac{1}{2}$ in. in diameter, much resembling little furrowed, conical crowns. As they unfold they become whiter. Nearly every branch terminates with a corymb of flowers. Each corymb consists of from three to six umbels of from five to fifteen flowers, so that the entire bush in bloom is a very showy object.

Should the *Lilac* be forgotten? Yes, we answer, if it is not deemed worthy of better places and care than are usually given it. The *Lilac* is always neglected, and yet there is no shrub that more heartily responds to care. There are few pleasanter sights in spring than an assortment of different-coloured *Lilacs* in full bloom. The colours are white, lilac, reddish-purple, and bluish-purple.

Wheatley's English Elm (*Ulmus campestris* Wheatleyi).—It will doubtless seem strange to many that I should pass over the American Elm for an English Elm, when it is well known that the English Elm is not popular in America; but remember I am selecting lawn trees and not street trees. The American Elm is somewhat coarse and too spreading in habit to suit a place of only an acre in extent. As an element of landscape gardening effect the European Elm is invaluable for the picturesque way in which a mature tree piles rounded masses of foliage one upon the other. It is lofty, too, and even spiry on occasion. This Wheatley's Elm, for instance, will grow 6 ft. during the first two years after grafting, which is no bad growth for any Elm. Then the American Elm loses its leaves early in autumn, while Wheatley's Elm holds its foliage particularly late. The foliage of the latter is rich and effective, and the form erect and pyramidal. It is, indeed, in many respects, only an excellent variety of the ordinary English Elm, but its excellence is so great that I believe it fully worthy of the high rank I have given it. We neglect these European Elms on our lawns unjustly.

The Laurel-leaved Willow (*Salix pentandra* (?) is the only Willow we should prize about our home. This has been disseminated by the *Rural New Yorker*, and our old readers have little to learn regarding it. It thrives everywhere. Its leaves are of the glossiest, reflecting the light almost like mirrors. Its long smooth branches sway in the wind as if they would be broken in pieces, though they never are. It is one of the first to unfold its leaves in spring, and one of the last to lose them in the fall. It may be cut back to any extent without harm, though if left to itself it forms a small pyramidal tree 15 ft. or more in height, full of a graceful elasticity, and nearly all that could be desired in a tree that is necessarily somewhat formal in its habit.

The Paulownia Confined to One Shoot.—Several years ago a strong root of the *Paulownia imperialis* was planted in the Rural Grounds, in the centre of a flower bed about 12 ft. in diameter. One shoot alone was permitted to grow. It made a growth of 8 ft. the first summer, which was cut back nearly to the ground. The next spring (1877) the stump budded May 24. As before, all the buds but one were rubbed off. On June 1 this bud had grown 1 ft. Afterwards, to ascertain its rate of growth, it was measured on August 5, and again on August 12. The growth was precisely 13 in. September 23, the stem had attained a height of 14 ft. The stem 1 ft. from the ground was 3 in. in circumference. The leaves were about 9 in. apart, and the largest measured 2 ft. 3 in. across. All of the leaves were nearly as large, except those at or near the top. They are heart-shaped—nearly round. The leaf-stalks averaged 16 in. in length and nearly 1 in. in diameter, remaining until frost quite green. The leaves stood many hard winds without being much torn. It towered up during the middle and later part of the

season above the surrounding foliage—a singularly attractive object. The annual shoot has since been cut back every spring, though it has not since in any season made so tall a growth as in 1877.

A "Nevergreen."—Among the notes is one from a "funny man," Mr. S. Rufus Mason, Dodge County, Neb.: "We have a small tree, native to the hills and river bluffs, which I have but seldom seen anywhere else. In its wild state it is a rusty, bronzy green, grows wherever it can get a chance, and won't grow anywhere else; yet thousands are to be found round every house. Traditionally it is called *Cupressus thyoides* (?). It is generally supposed to be an evergreen, though neither white nor green, and as soon as it is transplanted to civilised quarters, it shows its abhorrence of its new condition by turning a dirty, rusty, yellowish-brown, and staying so. At once the women take up this exponent of stubbornness, and whenever "company" calls, begin (after the weather and the babies are exhausted) to talk about how "Jake dug 'em up, an' set 'em out, an' they all died." This tribe of underbush is one of our most valuable plants (after Corn and "Taters"), as it furnishes food for conversation in the driest and dreariest of seasons, while its "pecooliar" colour is at all times a pleasing contrast to our beautiful green prairies, or our snow-clad bottoms. I call them "nevergreens," and have applied for a patent for the name.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS

Camellias are hardier than many ordinary shrubs that are planted indiscriminately all over the country; any one wishing to give them a trial out of doors should now lose no time in obtaining young healthy plants and putting them out at once, in order that they may make their young growth entirely out of doors, and have a chance of getting it well ripened before next winter. A good mixture of loam, peat, and cow manure should be prepared for them in a sheltered position, from which the full sweep of the wind from the north and east is shut off, for I find that even the common Box is quite browned when fully exposed to the late gales, and a bush that, like the *Camellia*, flowers early, however hardy it may be in withstanding frost, needs shelter from ruthless winds when in blossom.—J. GROOM.

Wych Elm at Bury St. Edmunds.—Mr. Peter Grieve kindly sends us a photograph of a noble Elm at Bury St. Edmunds, of which the lower branches "weep" gracefully. The Elm is one of our grandest of trees, and deserving of our best attention in all its forms; the specimen in question is not the true weeping variety, but rather the normal form with the outer and lower branches pendulous. The true weeping Elm is absolutely distinct in form, and, except when the tree is young, with the branches never growing erect, but with great horizontal arms naked above. The photograph is by Mr. J. Clark, of Angel Hill, Bury St. Edmunds.

Magnolia Lenne.—This is a very useful *Magnolia* for a lawn. The blooms, which appear early in the summer, are the size of a goose's egg, and, being produced in profusion, are conspicuous on account of their rosy-purple colour, and their being unaccompanied by foliage, which, when it comes, is large and massive and retained till late in autumn. In very sunny aspects, a slight covering during the winter months is of use in protecting it from the dangers of alternately freezing and thawing. In such places it will produce its large grotesque-looking seed-pods abundantly, and in favourable seasons will ripen seeds. The latter should be sown, after being thoroughly dried in an airy place, during the early winter months. The seed-pans should then be placed in an unheated, but frost-proof pit till the spring, when it will be found that the majority of the seeds have germinated; still, it is then not advisable to disturb the pan, as others will not show any sign of life till further on in the year. In autumn the young plants can be potted off, or planted out in a sheltered spot, to be grown onwards. A rich, sandy loam, with a little peat, makes the best compost for this *Magnolia*. It would prove a welcome addition to our early-blooming conservatory plants.—SYLVESTRIS.

Magnolia conspicua.—Of this there is a fine specimen in Mr. Fox's nursery, at Alverton, covered with lovely pure white, sweet scented flowers, many of which are about 5 in. long. It is to be regretted that its leaves do not appear simultaneously with the flowers. Mr. Fox's tree is about the size of an ordinary Apple tree, though not quite so well grown or shapely as it might be. Individual flowers of it are almost as good for decorative purposes as those of *Calla aethiopica*. I know of only two other good specimens in this district.—W. ROBERTS, *Penzance*.

Coniferæ in Flower.—The two *Retinosporas*, obtusa and pisifera are this season unusually full of male flowers, which much resemble those of *Cupressus Lawsoniana*, but not so bright in colour. *Lawsoniana* in some places is quite red, owing to the number of blossoms which the plants are producing.—ALPHA.

FERNS.

ASPLENIUM BAPTISTI.

IN this *Asplenium* we have a fine and distinct looking stove Fern of evergreen habit, with a stout decumbent caudex, dull brownish-coloured stipes, and broadly ovate fronds about 1 ft. long, furnished with rather distant pinnæ, which have a distinct stalk one-fourth of an inch or rather more in length; the basal portion is split up into distant attenuated pinnules, about two on each side, the remaining part of the pinnæ, some 4 in. long, being linear, lengthened out to a much attenuated point, and the margins bearing at distant intervals linear pointed teeth projected forwards. The

pieces of slate, or similar things with treacle or sugar syrup. They will cover these utensils by thousands, scenting out the tempting sweets in a short time. When well crowded, the plates may be dipped sharply into hot water and, thus destroying the insects, may be used again as traps. This is perhaps a better and certainly a safer method than using boiling water, chemicals, &c., all about the soil and roots of the Ferns and other plants.—A. D.

— My recommendation is search for the nests near the pots, and scald them out with boiling water. Examine the plants also carefully for other insects, such as scale and aphides. The ants mostly come after such food as these afford them. Pick off the scale, suffocate the aphides with tobacco smoke, and the larder being thus cleared of food, the ants are starved out. If these plans fail, trap the ants in flat plates or pans, baited as follows: sweet or salad oil, with a



Asplenium Baptisti.

texture is thick and leathery, and the sori are large, oblong, straight, and lying close to and parallel with the midrib. The centre of the frond has an open appearance, owing to the stalks of both pinnæ and pinnules being slender. This Fern is no doubt allied to *A. contiguum*, but has the basal part of the pinnæ split up into a few distinct narrow-stalked pinnules, which, except in being much smaller, resembling the remaining portion of the pinnæ, having a few distinct linear teeth, and sori parallel with the midrib. It was imported by Mr. B. S. Williams, of Holloway, about a couple of years ago from the South Sea Islands, and was awarded first class certificates by the Royal Botanic and Horticultural Societies during the past year. It will make a good and elegant show Fern, on account of its distinct character and durable texture.

few lumps of coarse, brown sugar as a fragrant drug near the middle of the cup or pan. The ants will dip their feet in oil to reach it, and the latter disables or kills them. Similar vessels baited with thin honey smears the ants in the syrup, and if a little arsenic be mixed with the honey, the ants will eat their last sweets and quickly perish. But this is a dangerous remedy, and must on no account be used where children have access to the Fernery.—D. T. FISH.

Sparmannia africana we find to be extremely useful for conservatory decoration, and above all for making button-hole bouquets, the outer petals being of a beautiful glossy-looking white like silk, and the centre tuft of stamens maroon, tipped with golden pollen. Each head of bloom produces from twenty to thirty flowers, and as the plant is of the easiest culture, it is well worthy of a place wherever a conservatory or intermediate house is kept gay with flowers throughout the year.—J. G. L.

Ants in Ferneries.—Ants may be caught in large numbers at any hour of the day or night by simply coating some plates, dishes,

THE ROSE GARDEN.

MARECHAL NIEL ROSE.

I NOTICE that your cultivators are discussing the peculiarities of this grandest of Roses—peculiarities as to pruning, stocks, &c. Well, it certainly has some, but not more than I know of than others of the same habit, such as Solfaterre, Lamarque, and Chromatella. As regards canker which your correspondents mention, I have never seen but one uncertain instance of it. I have three very large plants of it on the Brier, set out in 1872, as standards which I intended to keep cut in and make beautiful umbrella heads of them, allowing the branches to weep to the ground, but this would not do. The more I cut them in the faster they grew and the less they flowered, showing that this Rose had not the least respect for or fear of the knife. Then I let it go like a spirited horse with a full rein, and the two plants now cover the roof of a span house, 20 ft. wide, to the distance of 50 ft., producing thousands of blossoms, the last of which are still beautiful. The stocks are 3 in. through, and at the union of bud and stock there is an overgrowth full 8 in. in diameter like a huge excrescence. I slit the bark of the stock below this up and down two years ago, and it has swelled up considerably, and left the opening 1 in. in diameter. The tree is now in the finest health; although I had it root-pruned two years ago, and filled in all around it with two or three barrowfuls of old broken pots to curb its vigour, still it grows about as luxuriantly as ever.

I have also one of the oldest plants in the country budded the first year it was brought to America, in 1865 or 1866, on a Solfaterre that was planted in 1845 in the Camellia house, beneath the floors in the gravelled subsoil, above which the surface had been taken off to make a Grape border. The long slender shoots (an old plant in a large pot) when planted were coiled around a 5-in. column, which supported the roof. When the Maréchal was introduced two buds were inserted at the top of the column, (8 ft. high) where the plant branched off with two arms. These grew rapidly, and soon covered one end of a very large house now filled with Camellias, and this very day I counted, as near as I could, 1000 buds and blossoms, although it has been in flower six weeks and hundreds cut off. The house has never exceeded 48° at night, and often as low as 38°, yet there is no mildew. It has been treated with bone dust, deluged with water, and occasionally liquid manure. It is a picture of health, and it is unnecessary to say of beauty—yes, of wonderful beauty, with flowers that completely fill a 5-in. goblet—perfect golden cups. Reading so much about it in THE GARDEN, my attention has been directed to it, and I examined it, in consequence, more minutely. The column, with several others, was removed ten years ago. The coils are ten in number, in a distance of 8 ft. The base of the stem is 4 in. in diameter, and the coils, all the way up, 2½ in. to 3 in. In fact, it is a good representation of a huge Anaconda—as we see him pictured in those wonderful tales in children's story books—crushing a horse and his rider. It stands erect now without any support up to the branches, and the extremity of the new growth is 50 ft. from the root. The Solfaterre was on its own roots. I feel quite proud of this old plant, and have never seen any Roses which equal them in size; whether it is due to the stock or liberal treatment I cannot say; but they are larger than those on the Brier, although I should add that the latter was forced, having been pruned Dec. 15, and immediately pushed into growth, the first flowers opening in just ten weeks; temperature—55° to 60° at night. The opposite end of the house has a climbing Devonensis, which has made shoots 16 ft. long, and that and the Maréchal Niel nearly cover the roof, which is just 100 ft. in length. Now this may have but little bearing on the discussion which appears to be, so far as I can learn, that the plants are touched with canker. I, of course, cannot know much about this, never having experienced any trouble in this respect. But if I may be allowed to suggest the cause of this, I should say the knife did it. The Maréchal, as I have said, like its namesake, has no fear of the knife; yet the bravest men have succumbed to the stiletto, and so will the most vigorous tree give up when cut to the heart. The entire pruning of Maréchal Niel should be merely thinning out superfluous shoots; never shorten only the very tips of unripe wood, and hardly that, for I have seen many unripe terminal shoots not larger than a straw push out a huge bud; in fact, the large plant budded on

the Solfaterre has never been pruned at all. If taking out a few snarly shoots and old half-dead spurs may be called pruning, one hour is more time than has been spent in pruning it for two years. I only wish you were near enough to see it. To sum up, plant the Maréchal in good rich soil, manure highly, water liberally when growing, withhold it when ripening the wood, force it as little as possible, don't prune, only thin out old snags and crowded shoots, bud on any kind of vigorous, free-growing stock, or plant on their own roots, and I believe all the failures will prove successes, and everybody enjoy the luxury of Maréchal Niels in abundance. C. M. HOVEY.

Boston, Mass.

Effect of the Winter on Roses.—We have three large beds of Roses planted with dwarfs and standards mixed. About the middle of November we protected them all by putting dry Fern on their heads, and mulching the ground about 8 in. thick with manure. Nevertheless, with all this protection, we have several dead and many injured, so that the chance of their blooming is but small. Last month we made good all blanks, and potted some few to take the place of any that may hereafter die. Had we not protected them the loss would have been great. I hope ere long to see Roses on their own roots the rule, and not the exception. With us the following have suffered most, viz.: Rev. J. B. Camm, Dr. Hooker, La France, Madame Rivers, Thorin, Avocat Duvivier, Mdle. E. Verdier, Baronne Louise Uxkull, Comtesse de Oxford, Devienne-Lamy, Reynolds Hole, Mdme. Lacharme, Mdme. Rousset, Mons. Woolfield, Prince Camille de Rohan, Hippolyte Jamain, Mdme. Noman, Mdme. Marie Finger, and Richard Wallace. Several others have suffered, but they are not dead, while some sorts look none the worse. I hear that the losses in many places are great; a neighbour told me the other day that he lost but few during the two previous winters, but this season he has lost more than half of his plants. —J. C., *Farnboro'.*

Roses from Cuttings.—We have at the present in 6-in. and 7-in. pots a quantity of Roses with good heads of bloom, averaging seven or eight flowers each, that were put in as cuttings little more than twelve months ago. They were potted last autumn, plunged in leaves during the winter, cut down low in February, put in a cold Vinery, and they are now useful plants for decorative purposes. —J. G., *Linton.*

The Best Rose of the Past Two Seasons.—We wish to figure the best Rose of the past two or three years, and shall be glad if our Rose-growing readers will settle the point as to which is best among new Roses as soon as possible. Mr. Walters names A. K. Williams as his choice. Will our Rose growing readers kindly say if they think so well of it? We desire that varieties should be judged mainly with reference to their value in the open air.

ORCHIDS.

ORCHIDS AT SYDENHAM.

IN Mr. Dorman's rich collection of Orchids at The Firs, Lawrie Park, Sydenham, the following are among the most noteworthy:—

Cattleyas.—Of these there is a remarkably fine collection, one spacious span-roofed house being entirely occupied by Cattleyas and Lælias. Seldom have we met with such a large collection so uniformly healthy and vigorous notwithstanding the diverse requirements of the various kinds. The collection is a thoroughly representative one, very few of the cultivated kinds being omitted. Though the present is not the season to see a Cattleya house in its gayest condition, there are, however, several beautiful plants in flower that make a good display. Among these are *C. gigas*, one of the finest of all; the blossoms measure some 6 in. or 7 in. across and have pale mauve-tinted sepals and petals of remarkable breadth and substance and a broad shallow lip, exquisitely crisped at the margin and of the richest amethyst-purple tint. Of *C. Trianae* there are several forms, one of the most beautiful being the pure white variety with only a flush of yellow on the lip. The pretty little Brazilian *C. Aclandiae* is represented in two or three varieties, one infinitely superior to the others, the lip being much broader, finely fringed, and of a deeper hue, the sepals and petals assuming a darker shade and having the markings more pronounced, while the other varieties are paler in colour and the blossoms much smaller. It is grown very successfully in suspended pots. The lovely *C. Mendeli* is grown numerous and its forms are also numerous. There is one in flower the exact counterpart of the splendid variety shown by Messrs. Veitch at South Kensington at

a recent meeting. The flowers are unusually large, having broad petals and sepals of a delicate blush tint, and a broad shallow lip superbly crisped at the edges and of the richest amethyst hue imaginable; another form has pure white petals and a deeply tinted lip, while others have a suffusion of orange; in fact, there appears to be every conceivable shade between the darkest and lightest varieties. *C. intermedia* is a charming plant when well grown and flowered; a fine plant here has some half-a-dozen spikes averaging five flowers each. *C. amethystina*, a plant not often met with in a flourishing condition, is a capital spring flowering species, and here it is displaying numerous showy flowers. To see such a fine *Cattleya* collection as this when the majority of the plants are in flower must indeed be a grand sight, but at no period of the year is it quite flowerless. Of the golden-flowered *C. citrina* there are some finely flowered plants in one of the cool houses, as many as eight flowers being produced on one mass.

Dendrobiums.—Among these are flowering plants of the rarely to be met with *D. albo-sanguineum*, a beautiful species from Moulmein, having flowers some 2 in. in diameter, with spreading broad petals and sepals of a creamy-white hue, and a large shallow lip of a similar shade, but conspicuously marked at the base with two lateral blotches of deep reddish-crimson. The flowers are very handsome, and, being produced on the current year's growth, furnished with healthy green foliage, considerably enhances its beauty. It is grown in the East Indian house in suspended pots, small compared with the size of the plants, but, judging by the stout stems, such treatment evidently meets its requirements. Other noteworthy kinds in flower are *D. tortile*, a pretty species with pale-pink flowers, having curiously twisted sepals. *D. Dalhousianum*, one of the finest of all *Dendrobiums*; *D. Farmeri* roseum, *D. Findleyanum*, *D. crystallinum*, very fine on suspended blocks; *D. crassinode*, and the lovely *D. infundibulum* and *Jamesianum*, two kinds very similar to each other, but distinguished by the former having a deep orange blotch on the lip, the latter by a pale yellow marking. The large masses of that beautiful but difficult to manage species *D. Falconeri* promise well for a fine show of blossom this year. The plants are attached to blocks of Tree Fern stem suspended in a cool, airy house.

Oncidium concolor.—This and *O. Marshallianum* are two of the showiest Orchids in flower, the former being particularly numerous and finely flowered. The majority of the plants are growing in suspended shallow pans, which seem admirably adapted for their growth. Many of the bulbs are bearing two spikes of bloom, and one we counted with sixty-five blossoms, the pure golden-yellow of which created a fine effect. There is also a variety with flowers of a decidedly paler yellow, scarcely so effective as the other, but still beautiful in a mass. This species, as well as *O. Marshallianum*, is grown in the *Dendrobium* or East Indian house, which is enlivened by the golden masses of bloom.

Cypripediums.—By far the finest form of *C. barbatum* we saw here in flower. It is remarkable for the breadth of the dorsal sepal, which is heart-shaped and beautifully striped with deep brownish-purple and white. The pouch, too, is large and of an intense deep purple. It is named *superbum*, but it differs essentially from the plants sold usually under that name. Among other kinds in flower are *C. Swanianum*, a handsome hybrid; *C. Argus*, a scarce East Indian species; *C. Hookeri*, *C. Dayanum*, *C. Harrisianum*, and *C. Lawrenceanum*, a new Bornean species, and one of the finest of the section. Of the pretty little *C. Schlimi* there is an extremely fine specimen, having twelve growths furnished with long healthy green foliage, entirely free from flaws caused by thrips, to the attacks of which this plant is particularly liable.

Odontoglossums.—For these, which represent a remarkably fine collection, there has recently been erected a new house specially devoted to their culture. It is a substantially built, span-roofed structure of moderate height, about 40 ft. long by 15 ft. wide. It is divided into two compartments, so that different atmospheres may be maintained. A path surrounds a broad central table, while around the sides are narrow benches which afford an excellent position for the smaller plants. An excellent idea has been carried out in the construction of the stages. They have flat cemented surfaces with a rim of cement a few inches high around the edges, so as to retain water, while provision is made to drain it off at will. The pots are placed on a layer of clean gravel, which may be submerged or drained dry as required. By this means a moist atmosphere may be maintained in the house without the paths being flooded. There is an excellent system of ventilating, air being admitted both at the ridge of the roof and along the side walls. Among the plants in flower are the new and as yet rare *O. polyanthum*, and we, for the first time, much admired its handsome appearance, though probably Mr. Dorman's plant represents a fine variety of it; the flowers are about the size of *O. triumphans*, of a rich yellow marked with heavy blotches of rich brown. The spike is borne erect, thereby showing the flowers to the best advantage.

O. luteo-purpureum var. *spectrum* is a distinct and attractive form of this variable species, there being more yellow in the flowers and the mottlings more conspicuous. *O. hystrix*, *O. triumphans*, *O. decorum* were also in flower, as was likewise the beautiful *O. Phalanopsis*, a species which beginners find difficult to manage. It is growing finely here in the East Indian house, though there are some healthy plants growing with the grand collection of *O. vexillarium*, which will shortly be quite a floral exhibition in themselves. The chastely beautiful *O. Roezli* album is flowering freely in the East Indian house.

Other Orchids in flower comprise the yellow-flowered *Masdevallia* Davisi, one of the most distinct and beautiful in the genus. *M. ignea* and its near ally *M. coccinea*, *M. Veitchi*, *amabilis*, *Harryana*, and among the section with long tail-like sepals, *M. chimæra*, *M. bella*, and the rare *M. Backhousiana*, which are showing several buds; *Cymbidium* Lowi with nineteen flowers on one spike; *Vanda cœrulescens*, *Trichopilia suavis superba*, *Saccolabium curvifolium*, *Bifrenaria* (*Maxillaria*) *Harrisonia*, are others now in flower in this fine Orchid collection.

W. G.

NOTES ON ORCHIDS IN FLOWER.

THE Orchid houses at Messrs. Veitch's are now very gay with flowers, consisting of those of the showy *Oncidium* concolor, *Vanda suavis* and tricolor, various *Cattleyas*, including the fine *C. Regnelli*, *Dendrobiums*, *Aerides*, and *Cypripediums*, besides the following noteworthy kinds:—

Phaius irroratus.—One of Mr. Dominy's finest hybrids, which first flowered some thirteen years ago. It is a cross between *P. Tankervilleæ* and *Calanthe vestita*; the foliage is broad and the flower-stem erect, about 2 ft. high, and bearing numerous flowers, 2½ in. across the petals and sepals, which are a bronzy white, and the broad circular lip creamy white. It is a most distinct plant, and it is a matter of regret that it should be so rare.

Epidendrum Wallisi.—Of this handsome species there is a fine plant, the tall slender stems of which are terminated by drooping racemes of flowers, having yellow petals and sepals, and wide lips with orange crest and numerous heavy pencillings of dark purple on a whitish ground. It is such a handsome plant when in flower that no choice collection of Orchids can be considered complete without it. It is from the tropics of South America, hence requires to be grown in a moist, warm house. The long time during which this species keeps in flower is another recommendation.

Lælia flammea.—This is among the handsomest of Mr. Seden's hybrids, and quite distinct from any other kinds. The flowers are larger than those of *L. harpophylla*, but not such a bright orange; they are of a deeper shade, and the middle of the lip is still deeper in colour. It resembles in habit *L. cinnabarina* and bears its flowers much in the same way. A fine flowering plant of it is growing in a rather warm compartment at this nursery.

Oncidium Crœsus.—This is aptly called the Black and Gold Wasp-coloured Oncid, and an extremely pretty little plant it is, quite distinct from most species belonging to this genus. It is very dwarf, being only about 2 in. in height, with the two or three flowers produced on short zig-zag spikes. The colour of the petals and sepals is a rich reddish-brown, while the lip is a bright, clear yellow, contrasting strongly with the large purplish-black blotch in the centre of the bloom, which renders it very striking. It succeeds well in an intermediate house, grown in a suspended shallow pan.

Phalænopsis Parishii.—This is a charming little species, quite a gem in its way. It grows only some 2 in. or 3 in. high, with a few narrow, blunt-tipped leaves; the flowers, which are about ½ in. across, are produced on short spikes, from five to ten on each; the colour is creamy-white, with a rich deep purple lip, at the base of which are some yellow spots. It is a pretty plant grown in suspended shallow pans or baskets in a moist, warm house. It was one of the numerous discoveries of the Rev. Mr. Parish in Burmah, and though it has been in cultivation nearly twenty years, it is still extremely rare.

The Odontoglossum houses at Mr. Bull's nursery, King's Road, Chelsea, are quite floral exhibitions in themselves, so finely flowered are the numerous species and varieties represented. The lovely *O. vexillarium* occupies half of a spacious house, and in such a large collection there is necessarily a great variation in the flowers as regards size and colour. From the finest varieties, which have blossoms measuring some 4 in. across and of a rich, deep rosy-pink, there is every transitional form down to a poor variety with small, washy blooms. Such a mass of delicate colour in such varied shades is one of the prettiest sights imaginable, but scarcely inferior to it is the next house, in which there is a large variety of the cooler house section. There are many forms, some being very fine,

bearing a dozen or more flowers on long, arching spikes; *O. Halli*, triumphans, luteo-purpureum, Andersonianum, and the almost perpetual flowering *O. crispum* and its near neighbour *O. Pescatorei*, and not omitting the pretty *O. Cervantesi* and its variety *decorum*. *O. Roezli*, as well as its lovely white form, are represented by a large and finely-flowered group grown in a rather warmer house than the bulk of the collection.

The Masdevallia house is now assuming a gay appearance, as the flowering season has just commenced. There is a wonderful variety among those beautiful, but nearly related, kinds, *M. Lindeni* and *Harryana*, some, of course, being greatly superior to others. *M. Harryana coerulescens* is particularly fine; the rich crimson blossoms overlaid with a satiny lustre of a purplish tint are unsurpassed among Orchids. *M. Veitchi*, which seems to be always in flower, is at its best, and so are *M. ignea* and *coccinea*, which for some months have been gay with bloom. Among the rarer kinds in flower are *M. trochilus*, which has very singularly shaped flowers, the body of which is a brownish chocolate hue with a metallic lustre and long slender yellow tails, the whole flower measuring well nigh 1 ft. from tip to tip across the tail-like sepals. Another rarity is *M. militaris*, which is somewhat in the way of *M. ignea*, but the sepals are broader and of a brighter colour. There are several little gems, such as *M. Estradae* and *M. Wagneri*, both extremely pretty when examined closely, though not so attractive as their gayer coloured relatives. Of the handsome *M. chimara*, *bella*, and the rare *M. Backhousiana*, there will shortly be some fine plants in flower, as several plants promise a good display of bloom. There are also the following in flower:—

Cymbidium eburneum maculatum.—This new variety is by far the handsomest we have seen, as the lip of the flowers not only differs from the ordinary forms by being copiously spotted with purple and flushed with golden-yellow, but the shape of it is different, it being more shell-like and the concavity considerably deeper. This plant is growing among a houseful of the same species, many of which are in flower, and it is interesting to observe the wide variation existing between the ordinary variety and this superb form.

Epidendrum prismatocarpum.—There is a remarkably fine example of this handsome species bearing several large drooping spikes, on one of which we counted twenty-two flowers. The flowers are about 1 in. across, the petals and sepals creamy white, heavily blotched with deep green, while the long and narrow rosy-tinted lip is ornamented by a triangular blotch of a purple-carmine hue. It is one of the slender bulb section, and is apparently a free grower, and does not require a very high temperature, being a native of the mountains of Panama. W. G.

Angræcum citratum.—A very fine specimen of this charming Orchid is at present in flower in Mr. Corning's collection, bearing 21 spikes and 481 flowers. This plant was grown in a pan suspended from the roof and potted in nothing but charcoal, into which it roots freely. This material also insures the safe keeping of the roots by allowing them to be dry at least once a day, and affords the opportunity of watering the plants overhead, so beneficial to many kinds of Orchids. This species delights in abundance of heat which in America means from 100° to 115° in the day-time, and from 85° to 90° at night in the Indian house.—F. GOLDBRING.

Odontoglossum Roezli album.—The now popular *O. Alexandræ* is perhaps deservedly styled the "Queen of cool Orchids," though it has a dangerous rival in the white *Roezli*, the chaste and beautiful blossoms of which are unsurpassable, and were it not for the golden-yellow centre they would be spotless white; and added to this is a delicious perfume, which *Alexandræ* does not possess. In order to grow it well skilful treatment is required, even more so than in the case of its lovely congener *O. vexillarium*. In Mr. Cobb's collection there are fine plants of it in flower in an intermediate house, where it appears to thrive admirably under Mr. Catt's skilful management. The uncommonly fine collection of *O. vexillarium*, noticed in our columns some time ago, promises to produce a grand display, there being on some of the strongest plants spikes bearing between twenty and thirty buds.—W. G.

Burlingtonia candida.—This is by far the most beautiful of the *Burlingtonias* in cultivation, its blossoms being unusually large and of a delicate transparent white flushed here and there with a purplish hue. They are produced in drooping racemes about 6 in. long from the base of the compressed bulbs. In Mr. Cobb's collection at Silverdale Lodge, Sydenham, there is a fine example in flower growing in a suspended basket, which is evidently the best mode of growing this, as well as the other species.—W. G.

Oncidium sarcoodes.—This fine showy species is now in flower in Mr. Corning's collection, three plants especially being worthy of note, each bearing a branching spike, each spikelet bearing seventy-

two, fifty-nine, and thirty-seven flowers respectively. In America, this species does well under cool treatment, but of course this is no criterion for England, for with us the average day temperature of the cool house in summer is at least 90°.—F. GOLDBRING, *Albany, New York*.

Oncidium Balderramæ.—The blossoms of this rare species promise to be handsome, judging by the plant in the collection at Silverdale Lodge, Sydenham, which will shortly be in flower. In growth and habit, and also in the flower-spikes and buds, it resembles *O. serratum*, of which there are here some remarkably fine examples, one having a spike several feet long, and furnished with upwards of sixty flower-buds.—W. G.

Finely Flowered Dendrobium thyrsiflorum.—A grand specimen of this fine Orchid has just flowered in Messrs. Backhouse & Sons' nurseries, York. It measured 3 ft. 6 in. across, the bulbs varying from 12 in. to 21 in. in height, and has borne about twenty flower-spikes. It remained in flower for about three weeks, and was one of the chief attractions of the nursery. It was one of the *Mac-laren* collection.

Dendrobium senile.—This is generally considered to be a botanical curiosity; not so, however, when well grown and flowered, for though its short hairy stems are very singular, the flowers, which are nearly 2 in. across, are a bright golden yellow. A plant of it in Mr. Cobb's collection had several expanded flowers on it, which are highly attractive and interesting. It is grown in a hanging basket.—W. G.

Cattleya gigas.—In the annual management of this fine Orchid the month of May is a very important period. Where the plants have been wintered, as recommended, in a light, airy position with a temperature ranging from 50° to 60°, young breaks will now be fast pushing. Water may now be given more frequently, but avoid keeping the roots constantly wet; a thorough soaking about every seven days will satisfy any well-established plant in a pot. Basket plants, or those growing on blocks, may require it oftener. *C. gigas* prefers growing in a pot to all other methods. The block and pot system combined answers in every respect. The proper place for this *Cattleya* now is the Mexican house, or where it will get a high, sun-heated temperature, a small amount of shade, and at all times when the external air is above 50° a free circulation of fresh air. Indeed, so long as the sun can keep the inside temperature between 70° and 80° it would be difficult in an ordinary-built Orchid house to give too much air. If a plant intends flowering, the flower-sheath will be visible a few days after the leaf proper emerges from its encasing bracts. From this time bulb, flower, and leaf come away altogether at a rapid rate, so that by the time the leaf is exposed at the top of the bulb the flower-buds will be as large as Damsons. The plant should then be moved to the *Cattleya* house, where, with less exposure to the sun and a more generous atmosphere, it will carry with the least distress its large complement of flowers, which will last four weeks in perfection. The best time to pot, or in any way interfere with the roots of *C. gigas*, is a few weeks after the flowering season.—J. C. SPYERS, *Burford Lodge*.

NOTES AND READINGS.

I should like to say a few words on the Auricle show business, hoping that I shall not make any florists angry. I appreciate and understand their labours (they never admit that anybody does who differs from them), and I have no desire to limit the field of their work. I am willing to help them, and wish them to get as many converts as they can, but I want to ask, What is the end of all their work with this sturdy little mountain flower?—a few not very conspicuous specimens in pots, a few exhibitors—very few indeed—and very interesting flowers, correctly staged and in other respects admirable. But when I ask any of the brotherhood if any of their choice race of flowers are fit for culture in the open air, and do not want attention in pots and frames, and to be made the subjects of much care—in other words, if any of their show Auricles are fit for the decoration of the open garden in spring—they shake their heads.

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Well, this seems a strange kind of "improvement" that a plant of the mountains of Europe, hardy everywhere, through enormous areas of the coldest and most pitiless regions, should require frame treatment in our comparatively temperate country. The sturdy little highlander has been nursed so long and so tenderly, that he cannot now stand a whiff of his native air.

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The smiling valleys and hillsides where cultivation is carried on throughout Europe are in a much better climate than where these

plants are found naturally. No barren or wind-tortured mountain slope is too severe for them; nor must it be supposed that such alpine conditions are necessary, because we know that the common form of the plant grows with the greatest freedom in our garden borders in many districts. It is one of the few alpine *Primulas* which grow without the least care or attention, but, in consequence of the plant being treated from the florist's point of view mainly, one never enjoys its beauty in the garden, and it is only by chance one sees a few tufts of the common kind here and there in borders or on rock gardens, and for the simple reason that the many beautiful hardy forms that have been raised from seed have been contemptuously thrown away in the search after one ideal set.

The ideal of the florist is based on qualities or "points" (approaching the monstrous in some cases) which do not admit of the free and vigorous improvement of the plant from the point of view of the ordinary human being, the artist, the gardener, or the public. The ordinary human being ought to have a word said for him, and I am glad I do it in a quiet room, or otherwise some of the more unrelenting members of the craft might be inclined to treat me severely. I have always noticed that florists are particularly savage with anybody who doubts their ways or their aims, and the result of both; but if they will only reflect they would see that to do real justice to their favourites they must look at them from a broader point of view than they do. I assume that their object is to make people love plants and to make our gardens brighter, richer, and more beautiful, but how many handsome forms have been destroyed and cast on one side because they did not fit the ordinary florist's standard.

The *Auricula*, like many other plants, varies infinitely. What we want for our gardens is that its boldest and handsomest expression of form or colour or strength in each direction should be secured and increased. What we get are a few flowers of a few types from a few people, who exhibit them at a few places a few times and then hide them again, filling as much paper by writing about them in the interval as would cover more ground than their favourites. The noise they make is out of all proportion to their deeds. We want perfectly hardy, showily-coloured, purely-coloured, or delicately-coloured forms for the embellishment of the open garden. These are easily raised; some desirable kinds exist already, but nobody seems to have taken the trouble to fix and increase them. The tendency has been to pronounce everything rubbish except where it comes near a special standard, which, as we have before pointed out, is in some cases, as in green edges, a monstrous development which interferes with the fullest health and growth of the plant. Just consider the uses one might make of these varieties. Given a good mauve in some quantity, what bright tufts and colonies and edgings of this we might have. Then there are the rich, rosy, large crimson kinds with white centres, quite free; and purple kinds might easily be raised, if not already obtainable. In fact, there is no limit to the improvement that might be made with these flowers, considered wholly apart from the usual frame culture of the florist for the exhibition of pips in pots.

A gardener who had to adorn a large place in spring would find some nursery lines of each of such handsome hardy varieties valuable in his work. To the rock garden they would give a new feature. They would even have the effect of calling attention more than ever to the beauties of the florist's kinds. The public, the artist, and the ordinary gardener, attracted by the lovely colour and the hardiness of these flowers in the open air, would be more likely to go into the refinements of the choicer florist's kinds. One point in the matter deserves mention, and that is the notion that the public or the artist can ever take the same interest in the few pips in a pot as they would in a healthy, wide group or colony of a handsome kind in the open air. It is impossible. Let us, then, have other ways than those of the florist, and thus save one of the bonniest little hardy plants which we possess from misuse.

PEREGRINE.

Exhibition of Clematises.—At the Alexandra Palace there is now on view a fine exhibition of *Clematises* from Messrs. Jackman & Sons' nursery, Woking, which will remain open for some days.

THE KITCHEN GARDEN.

Vegetable Marrows.—These may be grown in quantity in positions that cannot be profitably utilised by any other crop. We get abundance of them from rubbish heaps treated in the following manner: All such hard substances as Cabbage-stalks, flower-stems, &c., are placed at the bottom to form a foundation, on which are placed leaves, litter, and sweepings of walks, finishing off with old potting mould. The plants are sown in single pots in March and planted out in April under handlights, which as soon as the plants begin to run are set on bricks to allow the shoots to grow outwards. The top soil is mulched with straw or litter of some kind, and the bed is kept moist by copious supplies of water in dry weather; during periods of drought when succulent vegetables get scarce, a good supply of Marrows is a great help, and this we get in the way just described. They should be cut before they get very large, for one will produce hundreds of seeds, and if only a few are left to become very large, they wholly monopolise the energy of the plants and the production of young fruit ceases. If kept closely cut, however, and the plants well supplied with moisture at the roots, there is scarcely any limit to the quantity of good vegetable food which they will produce, and, in addition to their usefulness in a young state, the fully matured ones may be hung up in a dry shed for use in winter. They also make a good preserve, which, when fruits are scarce, is much appreciated. If one has no glass structure in which to raise the plants, the seeds may be sown now in the positions in which they are to remain.—JAMES GROOM.

French Beans in Pots.—These are useful for filling up gaps caused by severe winters in our ordinary supply of spring Broccoli. Of course, where a good supply of pits is at command, nothing is so good as growing them in that manner, as their productiveness depends entirely on the root-space at command; and in pits with a good depth of soil they keep branching out and bearing successional crops almost as long as they do out-of-doors in summer. But as the demand on glass structures is generally great in spring, we have to fall back on the old plan of growing them in good-sized pots or boxes, so that they can be set wherever there is a morsel of space; all they require is good soil, heat, light, and moisture in abundance both at the root and in the atmosphere. We generally sow six or eight Beans in 8-in. pots, and as soon as they require support twigs of Birch are stuck round the edge of the pots to support them. The sorts which we grow are Osborn's Forcing and Fulmer's Dwarf Prolific, both excellent sorts. Weak liquid manure given in quantity after the Beans are set is a great help to the swelling crop, and they need copious syringings to keep down that greatest pest of all to the French Bean, viz. red spider, which can only be set at defiance by avoiding cold draughts and dry atmospheres.—J. G. LINTON.

Early Spring Cabbages.—At no time of the year are Cabbages more appreciated than early in spring, and although considered a common vegetable, they well repay one for the best position in the garden that can be found for them. In order to get a supply of crisp young hearts during April and the beginning of May, before the main crop on open quarters is fit for use, they must have a south aspect. We sow the seed during the third week in July, and plant out on well enriched soil early in September, about 1½ ft. apart each way, as they are not allowed to reach anything like their full growth before being cut. After they are planted they should be frequently surface-stirred to promote growth, and a little soil should be drawn to the stems to keep the wind from rocking them to and fro, which greatly retards growth. As soon as the days begin to lengthen, we generally spread a light dressing of thoroughly rotten manure between the rows and lightly fork it in, filling up any gaps that may have occurred through the winter; they then make rapid progress, and by the time Brussels Sprouts are done, young Cabbages will be fit for use, and delicious they are. We grow the smaller quick-hearting sorts, such as the Early York and Wheeler's Imperial, for very early cutting, but a good selection of the Early Battersea will not be many days behind them; in fact, for general crops, the Early Battersea is all that can be desired in the way of a Cabbage. When the Cabbages are cut, the ground must be got ready for another crop; we generally fork it up immediately the crop is cut, and sow dwarf French Beans, a vegetable in demand whenever it is procurable.—JAMES GROOM.

Late-planted Broccoli.—There can be little doubt that the hardiness of Broccoli, and their ability to withstand our winters, depend more on the condition they are in than on any special qualities of hardiness which they possess, and, therefore, varieties that do not under ordinary circumstances form heads until late in the season have a better chance of passing safely through the winter than those early kinds that have the embryo head more or less developed when our greatest cold usually occurs. We have this

season lost a large proportion of various sorts even that were laid, and whose stems were well protected with soil, but they were very luxuriant, owing to the exceptionally favourable season for developing vegetable growth. We fortunately, however, put out a quantity of late plants as a chance crop very late in the season on ground from which old Strawberry beds were cleared, and, as the soil was very hard, we dibbled them in with a crowbar. They made dwarf, sturdy plants, and are now becoming useful. They escaped the frost with scarcely any loss, although not laid or protected in any way. In future I shall therefore sow our main crops of spring Broccoli later and plant later than I have hitherto done, for where the daily supply of a large establishment is in question, even small Broccoli is much better than none, and, for general use, preferred to very large ones. With such severe winters and late springs to provide against, we must make special provisions for guarding our Broccoli crop, for its loss, when it occurs, is severely felt. Late sowing and planting, and a firm soil in which to plant, are the best safeguards against severe winters.—JAMES GROOM.

SEASONABLE WORK.

Kitchen Garden.—The main quarters of the garden having been disposed of, successional crops will require regular attention, the quantity of seed sown and the space occupied by each crop being regulated by the demand. In order to maintain a supply of fresh young Peas a sowing should be made once a fortnight through the spring and every ten days afterwards. Rows of Spinach being sown at the same time, ordinary attention will secure a steady supply of two of our most indispensable summer vegetables. If not already done, transplant Scarlet Runners, stake at once for protection from frost, and put in more seed for succession. When in thorough working order the main crop of Beet may be sown upon ground which has been manured for a preceding crop. Many people make a point of sowing after Broccoli, at the present time a scarce vegetable in this locality. Choose dull days for planting out Lettuce and Cauliflowers in rich ground which has been deeply drilled for the retention of water. Mulch plants under cap-glasses and keep them well supplied with liquid manure. A good sowing of Walcheren and Stadholder, a most excellent kind, made now will come in very useful, and in order to set a dry summer at defiance secure good crisp Lettuce by sowing a few drills once a fortnight on heavily manured ground where the plants can be thinned and grown on without a check. Where careful attention is devoted to the Brassica tribe, Brussels Sprouts, Cotta's Kale, and some of the Broccoli will now be fit for pricking out. Select rather strong soil in the open, give the plants plenty of room, and see that they do not want for water. Prick out, shade, and water the main crop of Celery. Proceed with the preparation of the trenches, and plant Cauliflowers or Lettuce on the ridges. Asparagus may still be planted; yearling plants are the best; give plenty of room, and water to settle the soil about the roots. W. COLEMAN.

LATE NOTES AND QUESTIONS.

Oleanders Shedding their Flower Buds.—The most common cause of this is the want of water. If properly drained and potted it is hardly possible to overwater these beautiful plants when in flower. The white roots "Enquirer" refers to are greedy of water. When they show on the surface as he describes, a top-dressing of spent Mushroom bed or thoroughly decomposed cow manure is of great service in preventing the falling of the buds and giving additional strength, size, and colour to the flowers. Possibly, too, the change from the Vinery to the open air was too much for them last summer or autumn. Few plants dislike violent or sudden changes or treatment more than Oleanders. Any excess of heat this spring, especially if associated with a want of water at the roots, would be likely to cause the blossoms to fall. The Oleander enjoys a moist root run and a genial atmosphere for its tops during its growing and flowering stages.—D. T. FISH.

Calla æthiopica.—I want to grow some plants of this in a tub in the greenhouse. Must I keep them in their pots, or turn them out into the water? and what quantity of soil should I put in? Lumps of peat, or sand, or what? I want to try some other water plants with them, and put cork on the outside, with Ferns, &c., in it.—W. E. G. [You can either grow the plants in pots or plant them out. The former is preferable, but the water should only be allowed to be above the roots. The soil best suited for Callas is good fibry loam, well-decayed manure, or leaf-mould, and sufficient sand to make the compost friable. If you turn the plants out of the pots, a small mound of soil should be put round the roots, and bricks or stones placed upon it to keep it in its place.—G.]

Palms.—What 12 Palms would do out of doors in summer, to be taken up in autumn? What other things could you recommend to associate with them?—G. M. [The following are species which should bear out of door treatment in summer and be content with a greenhouse temperature in winter, viz.: *Pritchardia filifera*, *Phoenix sylvestris*, *tenuis*, and *dactylifera*, *Chamærops Fortunei* and *humilis*, *Livistona sinensis* and *australis*, *Seaforthia elegans*, *Kentia Cantherburyana*, *australis*, *Baueri* and (*Areca*) *monostachya*, *Corypha umbraculifera* and *Jubæa spectabilis*.—W.]

Hepaticas and Christmas Roses.—In raising these from seed, should it be sown under glass or out of doors? and how soon should the seed be gathered? The Hepaticas are the common single kin's, white, pink, and blue. The Christmas Rose I have is, I think, the common one, *Helleborus niger*. Any directions about raising and taking care of the young plants will be considered a favour. Can any one give me the name of a good practical book on trees, shrubs, and Conifers? I want to know how to propagate them, and how to plant them profitably?—C. E. T., Antrim.

Evergreen Shrubs for Window Boxes.—M. M.—*Retinospora plumosa*, *squarrosa*, *obtusata* and *var. aurea*, *Ericoides*, *Euonymus*, all the varieties, *E. japonicus*, *E. microphyllus*, *Juniperus virginiana* and *vars.*, *Osmanthus myrtifolius*, *Hicifolius*, *Ruscus racemosus*, *Veronica Traversi*, *Olea fragrans*, *Buxus*, any dwarf variety.

Gloxinias and Cinerarias (Merri).—The double Cineraria is very fine, and appears to be identical with one named Mrs. Thomas Lloyd; but the Gloxinias, though fine, are not superior to others we have seen.

Anemones (Cashel).—One of those you send, the rich glossy crimson one, is among the finest we have seen. The malformed Fuchsia flower is very singular.

Jasminum hirsutum.—*Sandy Wifles.*—The cause of the reasons of the sickness of a plant can only be told by those who can examine it if by them. The nearest wire worker will probably tell you how to make a pillar for *Lapageria*; as to the *Azaleas*, the simple fact is, your cultivation of them is not so good as those from whom you bought them, and who no doubt make a speciality of them.

Planting Solanums Out-of-doors.—*Sandy Wifles.*—About the last week in this month is the best time for planting, as then all danger of injury by frosts will be past. Seedling plants should be grown under glass, a frame or house, until they are about 6 in. high, when they may be planted out.

New Pelargonium.—*W. Hender.*—Your crimson sport from *Vesuvius* is certainly a step in advance in the way of colour, and if, as you say, "the trusses are larger, and the habit better than that of the type," it will make a good addition to the class of *Pelargoniums* to which it belongs.

Cymbidium eburneum.—*Anthophilus.*—The plant of this *Cymbidium*, exhibited by Sir Trevor Lawrence some time ago with sixteen flowers on it, was an exceptionally fine specimen. This species is not often seen so large or so well grown.—W. G.

Gas Lime for Gardens.—Can any of your readers kindly inform me if it is safe to use gas lime for the destruction of weed seeds in old garden rubbish heaps? and if so, in what proportion would it be best to mix it? and how long must the heap be allowed to lie after mixing before using it for flowers and vegetables?—C. FISON, Parkstone, Dorset.

Ants in and under Pots.—I find several ants' nests in and under pots of Carnations placed on an ash bed. I cannot repot the plants, and if I did the ants would still be underneath among the ashes. What, therefore, am I to do?—GROFLE.

Forced Shrubs.—*Sandy Wifles.*—*Spiræas* and *Deutzias*, after being forced should be planted out in a border of good soil, and then lifted again in the autumn if required for forcing.

Vine Leaf Excrescences.—*Reader.*—These do no harm. They only show that the house is too damp, and in want of a little more ventilation when the weather becomes favourable.

Conservatory Aviaries.—Can any of your readers do me the favour of referring me to any conservatories (near London preferred) to which aviaries of tropical birds are made adjuncts?—W. H. T.

Blue Hydrangeas.—Will any reader of THE GARDEN kindly inform me how it is possible to make the white *Hydrangea* turn blue?—HUMBLE BEE.

Liquid Carbolic Soap.—Will some one kindly say where this can be purchased?—N.

Market Prices.—*Constant Sub.*—We are reconsidering the question of market prices.

Names of Plants.—R.—17, *Amelanchier canadensis*.—J. M.—*Ribes aureum*. The insect next week.—S. C. O.—*Omphalodes verna*, *Exochorda grandiflora*, the white flowered shrub.—G. P.—*Maréchal Niel*.—J. J.—1, *Geum aureum*; 4, *Primula villosa*; 2, *Ranunculus bulbosus*; 3, *Saxifraga virginensis*.—G. P.—*Abutilon vexillarium variegatum*.—J. Carter & Co.—*Doronicum austriacum*.—J. E. H.—We are unable to name the *Roses* from the insufficient specimens sent; send later in the season. Send also *Begonias* when in flower; the spotted-leaved kind appears to be *B. argyropsila*.

THE LIBRARY.

Henderson's Hand-book of Plants.—(Peter Henderson & Co., New York.)—This work seems a kind of gardener's dictionary issued by the well-known Mr. Peter Henderson, of New York, whose previous books on horticulture were deservedly very highly valued in America, as expressing the best knowledge of culture practised there. The book, from the hasty glance we are enabled to give at it before going to press, is well printed and comprehensive in plan, but seems to us to err by giving too much space and too much prominence to matters of purely technical interest, a paragraph being in each case given in explanation of the Latin name and the position of the plant in more than one system of botany. This matter, if given at all in an horticultural book, should be given a secondary place, but our own opinion is that it should not be given at all. Here, for example, is the beginning of a very short article on the Yew, occupying nearly half the space given to this important genus: "Yew. From *taxon*, a bow; the wood anciently used for bows; or from *taxis*, arrangement, the leaves being arranged on the branches like the teeth of a comb. Yew is supposed to be from the Celtic word *iv*, signifying verdure; alluding to the Yew being an evergreen. *Linn.*, *Diæcia-Polyandria*. Nat. Ord., *Taxaceæ*." In addition to these abundant technicalities there is a tremendous glossary of 152 pages, every needful word of which should have been incorporated in the first part, as the book is alphabetically arranged, and it was a mistake to give the reader the trouble of two references. We hope to refer to the book at greater length, and have now only time to welcome it.

BOOKS RECEIVED.

Fruit-growing in Kent; and, *Hops*; from the *Set* to the *Sky-lights*. By C. Whitehead, F.L.S.

Water: Its Composition, Collection, and Distribution. By J. Parry, C.E.

Ladies' Miltum-in-Parvo Flower Garden. By S. Wood.

Second Report U.S. Entomological Commission on the Rocky Mountain Locust. Riley, Packard & Thomas.

First Book of Botany. By J. H. Balfour, M.D., F.L.S.

The Cherry and Medlar. By D. T. Fish.

The Land Question of Ireland. By the Irish Land Committee.

THE GARDEN IN THE HOUSE.

HARDY FLOWERS FOR ROOMS.

THOSE who have much to do with the floral decoration of rooms—dinner tables, wreath making, or church festivals should hail with delight any turn of fashion likely to induce its worshippers to take the occupants of the mixed borders and reserve garden into their favour for any or most of the above-mentioned purposes; because, where such borders are full of useful telling subjects for cutting, and which it is possible to have during the spring, summer, and autumn, the temptation—nay, the necessity—to carry destruction in that way into glass structures would not be present. What is most the subject of wonder to most minds is that cultivators should have for so long a time persisted in what may be called a one-sided system of flower culture, giving the majority of tender things overweening attention, nothing seeming to excite their sympathy so much as to find that a new plant had a delicate constitution, was not easy of cultivation, or had some other unhappy failing. For this reason so many good plants are gone out of general cultivation. Happily, a revival is taking place amongst us, and what were but a short time ago reckoned as outsiders will again come to the front.

Where colonies of hardy plants exist already, or beds or borders in gardens and pleasure grounds, the aim should be the attainment of a good and numerous selection for each month in which flowers may reasonably be expected. Such plants need not be costly; many can be raised from seeds if named subjects or varieties be not considered essential, and if not so fine as those, they will still have much decorative worth. This holds good of Phloxes, Gladioli, Aquilegias, Pentstemons, Delphiniums, Dianthus, Epimediums, Lychnis, Poppies, Potentillas, single Pyrethrums, Statice, Violas, Dahlias, and a host of others, beside choice annuals. It is during the spring months, and again late in autumn, that the chief want of hardy flowers is most felt. Nothing fills up the spring gap so well as the bulbous section. A selection is very easily made, but the natural increase of the same demands annual attention, at least until a good store is got together—the taking up of all such things as are not injured thereby, and the transplanting of the smallest bulbs, tubers, and offsets into nursery lines in the reserve garden. By attention to this, and to the various means of increasing the perennial and biennial subjects, there would be no scarcity of bloom for any reasonable purpose.

Flowering shrubs should be made to furnish their contingent as well, which they are well able to do, in flower, leaf, and berry. I will merely mention such things as Ribes, Pyrus, Prunus, Philadelphia, Magnolia, Spiræa, Lonicera, Erica, Azalea, Corchorus, Thorns, Bignonia, Calycanthus, not reckoning the evergreen flowering plants and Roses. Amongst decorative subjects not to be lost sight of are the annual Grasses; they are good in late summer if sown early in February, and still more acceptable if cut before the seeds form, and dried naturally or bleached for winter use. Grasses, when bleached, are charming subjects for vases or for dinner tables, being feathery, light, elegant, and good substitutes sometimes for Fern fronds and other green foliage. I have grown, instead of Maidenhair Fern for bouquets, *Melaleuca alba*; and for the Myrtle, *Eugenia australis*; the former standing heat and dust better than the Fern, and the latter recommends itself by reason of its more rapid growth compared with the Myrtle, and its more glistening, livelier green. Single Camellias are out of the common—plants which every one could get from seed, and yet but few do so. They are as hardy as a Laurel, and flower profusely. I think the white one is more distinct-looking than the red variety—at any rate the dark foliage throws up a white flower better than it does a red one. *C. Waratah* is also striking when arranged in a natural way with other flowers in a vase, but of doubtful value as a hand bouquet flower. In the autumn and early winter, ere forced things have come into use, is the critical period, just as May would prove to be as regards a good supply of fresh vegetables, after a very severe winter. I have found that a few hundred *Souvenir de la Malmaison* Rose, planted in long beds thickly, and covered with Cucumber frames to preserve the late blooms from the frost, exceedingly useful; also the old single *China Noisette* and *Fellenberg Noisette*, and *Schizostylis coccinea*, treated in the same way, with good results. *Pompone* and other *Chrysanthemums* could be so planted as to be easily protected with frames, and by that means save many a sightly plant in a pot from untimely disfigurement.

SYLVESTRIS.

Weeds on Walks.—Annual turning and salting being both too expensive, "A. P." will find boiling water or hand-weeding probably his cheapest modes of getting rid of weeds. If he has a brewing copper or large boiler near, or can mount a furnace and an old boiler on wheels, scalding off weeds is a process as effective as it

is cheap and speedy. Hand-weeding, too, though terribly trying to one's patience, is a cheap way of getting rid of weeds where the labour of boys, women, or old men is available. On some sorts of gravel surface hoeing and raking also answers well. This used to be, I presume still is, the orthodox way of keeping walks and roads free from weeds in Scotland, where, on many large estates, many miles of roads and woodland and other walks are generally to be found. Six hoeings and rakings a year mostly kept the gravel in fair condition, though the dripping skies of Scotland may be said to be in league with weeds on gravel there and everywhere else.—D. T. FISH.

Apple Trees and Mistletoe.—Everyone who has a garden large enough to hold a few trees may have one with this parasite upon it if they choose. In some districts Mistletoe is not to be found; in fact, I have met with people who have never seen it growing. Three years ago we bought an Apple tree on which was Mistletoe some 3 in. long; the tree looked stunted, and so did the parasite. It was duly planted in good soil. The first summer it did not grow much, nor did the tree; next summer it improved, and the last summer it grew as much as I ever saw it do on trees on which it grew spontaneously, and the tree, which is a standard, is growing as well. I do not think Mistletoe injures trees, or how did the trees one sees in the west of England attain the size at which they have arrived, and still covered with Mistletoe? In an orchard close to where I was brought up it grew to almost any extent, and I could never see any difference between trees on which it grew and those on which there was none, although I must say that it is seen more on old trees than on young ones. I am, however, inclined to think that this is owing to the older trees having rougher bark than young ones, thus forming a good field for the growth of Mistletoe. I have tried on one or two occasions to propagate it by rubbing in the seeds on the sides of the branches, but with poor effect. Those who would like to grow it should plant a tree with Mistletoe on it, plant in an open space, and wait a season till the tree gets established, when the parasite will grow away freely enough.—J. C. F.

THE ASPARAGUS COMPETITION.

THIS will be held in the horticultural department of the Bath and West of England Society's Show at Tunbridge Wells, commencing on Monday, June 6. Notice from those desiring to compete should be given to the secretary of the horticultural department, the Hon. and Rev. F. T. Boscawen, Show Yard, Tunbridge Wells. All exhibits should be staged on the morning of Monday, not later than Twelve o'clock. The following prizes are offered for the first year's exhibition, and are (except the last two for market growers in Kent) open to growers in any part of the United Kingdom.

Prizes for Gardeners in Private Places.

For the best bundle of Asparagus grown by the exhibitor: 1st prize, £4; 2nd, £2 10s.; 3rd, £1 10s.; 4th, £1. The bundle of Asparagus is to consist of sixty heads. The prizes will be given to the largest Asparagus, provided it be in all other respects unobjectionable. Prizes will not be given where, in the opinion of the judge, there is no merit. The Asparagus must be free of earth, and the bundles will be opened by the judges in all cases where they think it well to do so. No imperfect or "double" heads will count.

Prizes for Amateurs not Employing any Regular Gardener.

For the best fifty heads, £2 10s.; second prize, £1 10s.; third prize, 15s. Grown by the exhibitor.

Prizes for Cottagers.

For the best twenty-five heads grown by the exhibitor, £1 10s.; 2nd, £1; 3rd, 10s.; 4th, 5s.

Prizes for Market Growers.

For the market grower who shall exhibit the best three bundles, each containing one hundred heads, £5 5s. This prize is offered by the Bath and West of England Society.

For the market grower in the county of Kent who shall exhibit the two best bundles of Asparagus, each containing one hundred heads: 1st prize, £3 3s.; 2nd, £2 2s.

Gardeners' Royal Benevolent Institution.—Lord Aberdare, president of the Royal Horticultural Society, has kindly consented to preside at the thirty-eighth Anniversary Festival of this Institution, to be held on the 6th July next. We are glad to learn that Mr. Cutler's proposal to increase the pensions £4 a year has been looked upon with favour by the sub-committee appointed to consider the matter, and that means are being devised to carry it out successfully.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE ROSE GARDEN.

ROSES FROM CUTTINGS.

THE past severe winters that we have experienced have made Rosarians turn their attention to the cultivation of tender Roses on their own roots as the best means of preserving them from being exterminated. Not many of the tender Tea-scented have survived through the past winter in the form of standards on the Brier; but, with a little attention, they are easily propagated by cuttings under hand-lights. About the end of October select a sunny, sheltered position, with a friable, well-manured soil, and, when dry, form the beds $2\frac{1}{2}$ ft. wide, with paths $1\frac{1}{2}$ ft. Raise the beds 8 in. above the paths, which will drain the moisture from the beds during heavy rains in winter, and the soil will become warm sooner in spring for the cuttings to make root-growth; and in May, when the weather gets warm and dry, fill up the paths with manure and soil above the level of the beds, which will give the cuttings the benefit of the summer rain, as they require a good supply of moisture during the growing period. I find the beginning of November the best time to select well-ripened cuttings; choose them with a heel, and leave them full length, if they can be got under the hand-lights. Short, well-ripened shoots are the best. The soil should be firm, and about $\frac{1}{2}$ in. of sand should be put on the surface of the bed. The hand-lights should be placed about 8 in. apart, the cuttings put in about 2 in. or 3 in. apart, and about 4 in. in the soil, well watering to settle them in their positions, and after severe frost they will again require to be made firm. When the leaves fall the hand-lights should be removed in favourable weather, when a dry wind will help to clear the leaves away, and after December every care should be taken to give very free ventilation in mild weather, in order to prevent early growth before roots are formed to support it. After February it is best to leave off the hand-lights altogether, except the frost is severe. I find that cuttings strike freely without hand-lights, only they require to be protected when the weather is severe with mats or evergreen boughs, and the beds may be made 1 ft. more in width.

Under the above treatment *Maréchal Niel* has made shoots 3 ft., and *Hybrid Perpetuals* 4 ft. in length by the end of the summer after the cuttings were put in. It is advisable not to move the plants the following autumn, but to leave them in the beds during winter, as they can be more easily protected in severe frost, and the strongest will be good plants to pot for forcing the following winter. *Souvenir d'un Ami* and others of the Tea-scented kinds flower finely the first summer from cuttings.

Such Roses as have survived through the past winter on the standard Brier may be considered hardy as far as this climate is concerned; but there is still plenty of room for Rosarians to hybridise and produce more hardy choice sorts that will endure the severest English winters. The *Rosa indica odorata*, the progenitor of the tender Tea-scented varieties, is indigenous to a warm and sunny climate, but when we turn from that sunny land of the south to the dreary north, the *Rosa kamtschatskensis* is found flourishing under a cloudy sky, and among the first of flowers to announce that the winter is past. Closer still to the ice-bound region

is, however, the *R. oxyacantha* and *acicularis*, both of which exist amongst Siberian snow, and in the western world the queen of flowers is found in equally great diversity of climate and situation. *R. fraxinifolia* and *nitida* are associated with the arctic homes of the Esquimaux, and southward, in a more genial clime, *R. rubifolia*, or the *Prairie Rose*, flourishes, and there has been produced from it some good hardy sorts by Rose growers on the other side the Atlantic. Those varieties that are indigenous near to the Tropics are, like *R. indica odorata* and its varieties, too tender to stand our severe winters without protection. By whatever means the Rose may be most profitably increased it will take some time to make up the deficiency caused by the frost during the past two years.

J. ROSS.

Highclere Gardens, Berks.

Earthing up Dwarf Roses in Winter.—Permit me most heartily to thank "A Midland Counties Amateur" for his valuable note on this subject in *THE GARDEN* (p. 437). His bottom layer of manure under the soil is the perfection of earthing up or covering dwarf Roses; the greater porosity of the lower stratum enables the buds to break more strongly. A covering 1 ft. deep of earth and manure would defy all the frosts that could ever visit us in these islands. Six and even 4 in. would generally prove effectual; but with 1 ft. of Rose-stems saved, of course more shoots and flowers would be enjoyed. The test point of the plan is the time and mode of uncovering. This season, for example, we have had some very stinging frosts in April. I trust "A Midland Counties Amateur," when half uncovered in March, was not in too great haste; we have suffered considerably at times and a great deal this year from over-haste in uncovering top and bottom. The experience of others on earthing, littering, or manuring up of dwarf Roses will prove most valuable; the chief points to note are the time, depth, and character of the covering, and the time of uncovering.—D. T. FISH.

Growing *Maréchal Niel*.—I wish to ask, what course I should adopt in the following matter. I want to grow *Maréchal Niel* Rose in a greenhouse which is very lofty. Vines occupy the whole of the top, but the glass gable facing east is to us the most desirable position; will it do? Of course we should wire it 10 in. from the glass. We wish to place the root outside in a prepared border, but the stonework is 5 ft. high against which the main stem would have to go outside, before it could be turned into the house. Would that be risky? I fear I could not get a worked plant with a stem long enough. I have several in pots on their own roots, 9 ft. to 12 ft. long; they have been grown in a greenhouse two years, but never heavily cropped; would one of these do? and should the stems outside be protected? and if so, how best? Would living Ivy do? Any useful hint will oblige.—J. W., *Yorkshire*.

Rose Cuttings.—Last May I trimmed off some of the new and better-ripened branches from pot trees which had been flowered in the greenhouse, but at the time they had been placed outside several weeks; therefore, the wood appeared to me to be in good condition for striking. They were cut 9 in. long, and inserted 6 in. deep in a trench made in good light, sandy loam, in a north aspect, shaded by trees. After treading them firm, little notice was taken of them (being in an out-of-the-way corner) until the autumn leaves were being gathered, when it was found that nearly every cutting had become a useful little plant. They were then lifted and planted in the borders. They consisted of *Hybrid Perpetual* kinds.—J. WOOD, *Kirkstall*.

Best Rose of the Past Two Seasons.—I certainly vote for A. K. Williams as the best Rose recently introduced. It is not so strong a grower as could be wished, but that may be owing to the severity of the last two winters, which have punished all our Roses terribly, killing even *La France* and *Alfred Colomb*, not standards, but unprotected.—W. ADDISON, *Broxbourne*.

Twenty Best Hardy Roses.—A very charming Rose may be a very poor grower and therefore not adapted to general cultivation. After recognising the merits of many new varieties, I find myself coming back to my old favourites, and were I planting twenty varieties of hardy Roses for myself, I should choose the following: *Hybrid Perpetuals*—General Jacqueminot, Caroline de Sansal, Baronne Prevost, Madame Louise Carique, Duchesse de Caylus, *La France*, *Coquette des Alpes*, Prince Camille de Rohan, *Glory of Waltham*, Charles Lefebvre, Reynolds Hole, Jules Margottin, Auguste Mie, Stanwell. *June Blooming*—Madame Plantier, Yellow Eglantine. *Moss*—Princess Adelaide, purple-leaved

Climbing—Queen of the Prairies, Baltimore Belle.—S. B. PARSONS, in *Rural New Yorker*.

EDITOR'S TABLE.

ALL the world is out in leaf and flowers are everywhere, the glow of the Rhododendron buds being alone a feast for a season. They have suffered less than most things from the choke-muddle, though some other good shrubs, such as the Skimmias, may occasionally be seen dying on the margin of it. Even trees that get their heads above the mass below are weakened and starved in the crush of Laurels and other things made rubbish by the absurd way they are overplanted and allowed to starve each other and everything else. The madness of neglecting the inexhaustible flora of all the northern and temperate world for a few tender things marshalled in lines and circles was no more in want of healthy change than is this disgrace of the shrubbery and plantation. In these we should see the material for the furnishing and garlanding of the earth in all the northern and temperate and mountain regions. But what do we see usually? Dust-dry borders exhausted with a profitless struggle of Laurel, Privet, and the other common stock of the nursery. Not that such are to be despised in themselves, only when they are placed everywhere, to choke everything, including themselves. The materials of the "choke" are often good enough of themselves if one or more were allowed to show their form and beauty in peace alone or with others in happy association, but even this is not possible as things are. With hatchet, saw, pick, and spade the whole ugly business should be approached, to clear away the myriads of useless and profitless rubbish which the popular way of treating the shrubbery has brought into every garden. Many good trees and shrubs not utterly lost may be saved and let grow for years in beauty or stateliness. The ground will in any case be cleared for other things, with room to live.

Happy those who have stately things about them now, from green-budding Larches to Lily-like flowered trees of hardy Magnolia, purple and white, and the many trees which, not stupidly placed, require no "brown study" every winter to arrange them or misarrange them. All the essential features or pictures in a garden should be arranged to last for years, some of them for generations. Handsome as are the Lily blooms of the Magnolias, no less worthy of a place on the table are the buds of the same trees, with their rich brown scales. The gardener has often good reason to regret the fashion of filling the house with flowers, but it is one which can only do him good. The out-door aspects of many things do not show all their charms. It is well to have them brought near the eye; well to have them show how much better they are than the many costlier objects which adorn even the best filled houses. No doubt it is hard to see one's favourites cut to pieces, but they fade before the sun; and if before they fade they are brought where they are more likely to be seen, all the better for the garden and the gardener. His remedy is, as the king said to the gardener who complained that the public plucked his flowers—"plant more!" One cause, natural enough, of the gardener's dislike to cutting was that his mutilated favourites were usually pets of the greenhouse or stove—reared with difficulty, few in number, and small in pots. But the newly awakened recognition of the at least equal claims of the out-door department will solve the difficulty. Great as are the merits of Stephanotis or Gardenia, people seem to care as much for a handful of the choicer Narcissi, a fresh truss of white Lilac, or a bunch of Moss Roses. The main difference is that the open-air class mean less care and less cost, and the gardener can settle the question of cut flowers by constant, deliberate thought and action in the planting of things that will afford abundance of sweet or fair blossoms in their season.

These are the years that try our friends. Lawns are in mourning with dead pretenders lauded for years as suitable for our climate. Nurserymen and planters should take a new departure, and give due place and honour to the trees and shrubs that live with us always, come never so much frost or rain. Through all the frosts the evergreen Barberry (*Mahonia Aquifolium*) has come unhurt, and its sweet breath is felt in the garden air. Burnt off the plains and open hill slopes of the Rocky Mountain regions, it takes refuge in the hollows carved by the streams on their way

down the mountains, places constantly visited by frost and snow. It is thus trained to hardships, and its behaviour in our own climate proves this. The lesson is to give due place and good place to such things, and to seek out such of their allies or varieties as will thrive as well with us.

Among shrubs usually left in the more obscure parts of botanic gardens, the Labrador Tea (*Ledum palustre*) has real merit, and is worthy of general culture, its white blossoms and buds on dull green leaves giving a good effect in May. There are various forms, the Canadian one seeming more compact, but there does not seem much difference among them. It is of easy culture in peat or moist, sandy loam, and untouched by any cold that visits our country. One might expect so much from a native of British North America. It should be grown with other dwarf, hardy shrubs in beds or other positions not liable to be overshadowed or overgrown by stronger subjects. As good among small shrubs, and well worthy of association with the preceding, is the dwarf American Laurel (*Kalmia glauca*), most delicate in colour, and yet effective at a long distance when grown, as it ought to be, in exposed beds. No cold seems to touch it. The European Garland-flower (*Daphne Cneorum*), now in beauty with the preceding, has, it seems, perished in some nurseries, but probably not from frost, as it is an alpine plant. The little *Andromeda polifolia* would group with the foregoing; it is never very effective, though distinct. A charm that might well be added to all good gardens in the pure air is a well-cared-for bed or group of the smaller "American plants," which are soon lost if placed around beds of the larger kinds. The small *Ledums*, Thyme-leaved and Box-leaved, with their pink buds are good as marginal plants for such beds or groups.

The wreaths of the white Mountain Clematis (*C. montana* var.) are rapidly whitening, and the delicate pale purplish blossoms of the much rarer and dwarfer Alpine Clematis (*C. or Atragene alpina*) are also visible. The Plaited Snowball (*Viburnum plicatum*) is already showy on walls and rapidly opening on shrubs; the showy double *Kerria* is very handsome and distinct among May shrubs. It is a handsome and large shrub near London away from walls, but often half buried in the crush of the shrubbery; as more usually grown on walls it does not suffer so much. The double *Spiræa* (*S. prunifolia* fl.-pl.) is effective here and there, but is delicate or peculiar, so that in many places it will not flower, or but weakly. Still the Japan Quince (faithful in bloom in March) adorns the garden; there is a really white variety in bloom at Coombe Wood, but the white one with the peach-coloured outside and the cherry-coloured buds is equally good.

Among flowering trees, an American, the "Wild Red Cherry" (*Prunus pennsylvanica*) is very good in form, and swarming with white, brush-like flowers—a fine lawn tree, lately in good condition at Kew. Why is it the many bush Meadow Sweets (*Spiræa*) flower so badly there while so free elsewhere? Mr. Stevens brings me a very graceful one (*S. confusa*), one shoot being a wreath of white blossoms nearly 2 ft. long; also the slender-leaved Barberry (*Berberis stenophylla*), which is now frequently met with, but often so buried in the crowd, that its fine form and graceful freedom of growth cannot be seen.

From Messrs. Lee, of Hammersmith, comes a lovely bush of the Colchic Bladder-nut (*Staphylea colchica*), with half-a-dozen racemes of silvery-white flowers on a head not more than 6 in. through. It is a choice shrub, which, taken up and placed in pots, forces well, and will be esteemed where a variety of early flowers is sought, as well as for select groups of the best shrubs.

Mr. J. T. Poë, of Nenagh, sends a sweet box of white spring flowers, conspicuous being the Snowdrop Anemone (*A. sylvestris*)—Snowdrop-like in bud, but when open very like the flowers of the white Japan Anemone. The blooms now sent are over 2½ in. across. Mr. Poë says:—

I send you my favourite white spring flowers—the double Narcissus poeticus (two weeks earlier than usual this year), the lovely Anemone sylvestris (the Honoring Jobert of our spring gardens), double white Wood Anemone, and the Snowflake, which has been fine this year; also the white Bluebell (*Scilla nutans alba*). These and a few sprays of Maiden-hair Fern would make a suitable bouquet for a country, if not for a town bride.

From Messrs. Fisher, Son, & Sibray come noble blossoms of their large, fragrant, white Rhododendron, one of which scents a large room. It seems one of the best of the many white forms of greenhouse Rhododendrons.

Among hardy flowers the Himalayan May Apple (*Podophyllum Emodi*) has been quaintly beautiful during the week, with its fine brown-stained leaves and solitary and curious, delicate, peach-coloured blossoms; a brave show of the earlier Tulips, seen in many gardens round London, flowers worthy of all honour and good place, of anything except devoting the whole garden to them, as they do not last long enough for that. The glorious blue of the Gentianella (*Gentiana acaulis*) is pleasant to see in the ground around the larger Conifers at Coombe Wood. Many similar bare surfaces might be adorned with like plants which take but little from the ground, and give as good colour as grosser feeders. The white American Wood Lily (*Trillium*) has been very beautiful during the week, and the Aubrietias also, they being somewhat later than usual in the blossoming. The variety named Hendersoni stands out among all for its distinct and rich colour.

The most curious flower of the year comes from the New Plant Company at Colchester, in the shape of a hybrid Iris, raised between *Iris susiana* and *I. iberica* by our correspondent Max Leichtlin, and named by him *Iris Van Houttei*. The flower is nearly as large, perhaps quite as large, as that of the strange *I. susiana*. It is 5 in. across and about the same in height. It is a very strange and lovely flower, but how it differs exactly in colour from *susiana* could only be told by having flowers of that kind before one at the same time. Rare as the grand *Iris susiana* is in a healthy state, in certain districts in England it thrives and flowers well as a border plant, as, for example, on the chalk in Kent in the Archbishop's garden near Margate.

From Scotland comes a box of bold, sweet, yellow Auriculas, as welcome as any flowers of the season. They are probably better in the Scotch gardens than here, owing, perhaps, to the greater moisture which suits this mountain plant. They are semi-double, and from Mrs. Galloway, of Carse Bridge House, by Alloa.

Mr. Roberts sends me the Glastonbury Thorn from Penzance, where one would expect it to be in bloom now. This tree is rarely satisfactory so far as we have noticed; precocity does not conduce to the vigour of the Hawthorn.

A vivid orange-red *Erigeron* comes from Baden-Baden about 1½ in. across; of this M. Leichtlin says: "Here is *Erigeron aurantiacus* from Turkestan (Regel's introduction), a fine dwarf (5 in. to 6 in.) growing plant and quite hardy; some of the flowers are even one half larger than those sent, but I wish to spare the big ones for seed."

Fresh and good Maréchal blooms have been sent by Mr. D. Uphill, Morton House Gardens, Dorchester, who says—

The tree from which these blooms were gathered was budded by myself on an old and very strong Brier fifteen years ago, and the following spring was removed to a west wall, where it grew rapidly and soon covered a large space of wall, but seldom gave us a good flower. After growing in that position for about five years it was removed to an orchard house, where it has ever since grown and bloomed most satisfactorily, giving us about 200 blooms the first year after removal, and each year since we have been able to gather from 500 to 600 splendid blooms. You will see, by the clean and healthy character of the foliage, that there is strength and vigour left, though the plant has for several years ceased to make such an exuberance of growth as in the early years of its existence. Still, I see no reason at present why it should not continue its usual supply of blooms.

Ever since the dawn of spring, when Miss Jekyll sent early little tufts of Primroses from a Surrey hillside, the Primrose and its varieties have been a source of pleasure. In some of the London gardens they look fatigued, and seem coming to the end of their beauty, but to-day (May 11) Mr. Caudwell, of Wantage, sends many beautiful varieties of Primroses and Cowslips. Amongst them are the simple old kinds, lovely, delicate, pale lemon-coloured double Primroses; a small gold-coloured one with orange stripe in each petal; one Primrose of the palest cream colour with bright

orange centre; a bunch of varied ones; some pale peach colour; others the darkest crimson with yellow centres. Particularly handsome, too, was a bunch of the Irish Cowslip, or Hose-in-Hose, so labelled by Mr. Caudwell. When people cultivate all such flowers as well as they deserve to be, we shall see very different effects from what they now usually present in exposed borders and on the starved margins of shrubberies.

The white Quamash (*Camassia Leichtlini*) comes from Mr. Kingsmill—a stately spike of whitish flowers with a peculiar and doubtful odour; some of the two-flowered *Narcissus* wild near Eastcot; the little American Indian Turnip (*Arisæma triphyllum*), green and curious, but still with no such claims on our æsthetic brethren as were urged in favour of the green Columbine last week. From the same district, Mr. McDonald sends fresh white and red forms of the Snake's-head Tulip, as the villagers call it; it would appear to be not very rare in a wild state in the district north of London.

A most welcome plant comes from the College Botanic Gardens, Dublin, the beautiful sulphur-coloured alpine *Anemone* (*A. sulphurea*), which has not been visible in many extensive rambles about London of late. Tall and strong, this Windflower is very beautiful. A good plant for a moist leafy nook is the white Pinnate Toothwort (*Dentaria pinnata*), with white Stock-like blossoms and Elder-like foliage. Not likely to be popular in ordinary borders, these flowers are welcome in May about the fringes of the hardy Fernery or bog garden, or quiet corners in the American garden. Mr. Burbidge also sends the Snowdrop *Anemone*, not so strong as the specimens from Mr. Poë at Nenagh, which were of remarkable beauty. With these comes the Hoop-petticoat *Narcissus* (*N. Bulbocodium*), which continues to be too rare in gardens, and the always-welcome gold and purple of the Pasque flower (*Anemone Pulsatilla*), perhaps the loveliest, when well grown, of all its lovely family. The College Gardens at Dublin have long been a home for a great variety of beautiful plant life, and all who care about gardening in any high or broad sense are well pleased that its stores are being well kept up and liberally added to.

Messrs. Dicksons, of Edinburgh, send the shoots of the Corstorphine Plane, the golden foliage of which can be seen from a great distance; even small trees amongst shrubs are beautiful at this season, and full-grown trees form a very striking feature in the landscape. The original tree (from which they got the buds some years ago) is at the village of Corstorphine, a few miles west of Edinburgh. Though supposed to be about 200 years old, it is still in robust health. This same tree was described by Loudon. The same firm also sends a bunch of *Triteleia uniflora* with two flowers borne on each stem; also *Draba gigas*, the first time it has ever flowered with Messrs. Dicksons, though they have had large patches of it on the rockery for nearly four years. Even without the flowers it is worth growing, as it forms a nice green carpet. The plant is, however, of no particular value or distinctness from a garden point of view in presence of the numbers of really bright alpine flowers that are neglected.

The earliest Rose (Safrano) comes from a south wall at Glasnevin, and now accompanies the mountain Clematis in bloom: the bright little American Cowslip (*Dodecatheon integrifolium*); the Lapland Lychnis, a Grape Hyacinth (*Muscari Strangewaysii*); Siebold's Primroses; a very desirable form of the Japan Quince (called *lutea macrantha*), of a creamy yellow hue in the buds; the Grass-leaved Buttercup (*R. graminifolius*), and the showy double Buttercup (*R. speciosus* fl.-pl.); the large Californian Saxifrage. Mr. Moore says that—

The double form of *Ranunculus speciosus* makes a good border plant. It grows in a drier place than the double *Caltha*, and the flowers are quite as good. *Anemone sulphurea* opened its first bloom yesterday, and promises to be fine later on. It does not seem to have minded in the least 4° of frost we had last night, although poor *Dicentra spectabilis* alongside it looks very forlorn. The dwarf Irises are following each other into blossom quickly. From many others I have picked *I. pumila lutea* as the best. One of the prettiest sights in the garden at present is a good tuft of *Saxifraga atro-purpurea*. When the sun shines on it the thousands of little star-like purplish flowers with which it is covered glisten like jewels. Strange to say, the fine *S. peltata*, which is in flower quite close to it, was not injured by last night's frost. It is the first time I have

known it to escape, and hope it is going to accommodate itself to our fickle and trying climate.

NOTES OF THE WEEK.

Haberlea rhodopensis.—This and the following plants are some of the more noteworthy now in flower in Mr. Joad's garden at Oakfield, Wimbledon Park. The *Haberlea* is a new plant in gardens; it comes from the Eastern Balkans, and is interesting as being one of the few of the family *Cyrtandraceæ* that is quite hardy in our climate. It somewhat resembles *Ramondia pyrenaica*, but the flowers are smaller and of a different shape. The colour is a soft, pale purple, dotted copiously with spots of a deeper hue, and with a faint dash of yellow inside the corolla. Mr. Joad's plant is the finest we have yet seen; it is a spreading tuft, bearing about a dozen flowers. It is growing on the shady side of the alpine house on a moist ledge of a block of tuffa, a position which seems to suit it admirably, being an imitation of the conditions under which it is found naturally. Though this plant is under glass there are others fully exposed on the rockery, where they are quite hardy.

Saxifraga sibirica.—This is a very pretty alpine of pigmy growth, and quite distinct from the majority of the other cultivated kinds. It grows about 1 in. high, has small, kidney-shaped leaves, forming a dense carpet, on which are studded the pure white, cup-shaped flowers—large for the size of the plant. It is as yet a rare species in gardens, though it has been introduced for many years from its native haunts, Siberia and the Caucasian Alps, where it grows amidst damp, shaded rocks, and in a similar position it is grown at Oakfield, where it thrives satisfactorily.

Ourisia coccinea.—This bright little hardy flower has fairly established itself close against the wall of one of the houses, and its roots have a firm grip of the bricks. Here it never fails to flower, and doubtless the secret of managing this reputedly difficult subject is to plant it hard against a rock or wall, and leave it undisturbed. Planted in the ordinary way it seldom thrives satisfactorily. When in flower the erect spikes of tubular blossoms of a brilliant vermilion colour are highly attractive.

Three Fine Calceolarias.—Nothing could well be prettier than the effect produced by *C. bicolor* and *C. crenatiflora* planted out in a border in one of the cool houses. The former has flowers half clear yellow and half white, and produced in great abundance. The plant is trained to a rafter, a position which shows its beauty off to advantage. *C. crenatiflora* has rather larger flowers and of a deeper yellow, and possesses the peculiarity of the pouches being conspicuously ribbed. The other species is *C. fuchsifolia*, an almost perpetual-flowering species with lemon-yellow flowers and *Fuchsia*-like leafage. All three are excellent plants, and may be grown by anyone in a cool greenhouse either planted out or in pots.

Rehmannia sinensis.—This is a handsome herbaceous plant of the *Cyrtandra* family from North China. It is of erect growth from 1 ft. to 1½ ft. high, furnished with coarsely toothed leaves and large tubular flowers about 2 in. in length and of a pale vinous purple, deepening towards the base of the tube. It is said to be almost, if not quite, hardy, but in the neighbourhood of London it does not thrive or even live in the open. Mr. Joad grows it very successfully in those cool houses in which he accomplishes so much with plants of a half hardy character.

The Rock Garden is gay with a host of flowers in bloom; among them we noticed the true *Campanula alpina*, a species of humble growth and with purple-blue, bell-like flowers, large for the size of the plant, borne in a loose, pyramidal manner; *Vesicaria græca*, a free-flowering Crucifer with clear yellow flowers; *Salix reticulata*, an alpine Willow in flower, and thriving finely; *Anthemis montana*, a dwarf species, with an abundance of dwarf, Daisy-like flowers; *Arnebia echioides*, the Prophet's-flower, with its black-spotted yellow blossoms; *Cortusa pubens*; *Rubus arcticus*, and various others. In the border we noticed

Astragalus adsurgens, one of the finest of the many species now cultivated. It is of dwarf growth with hoary, pinnate leaves and dense clusters of rich purple flowers. It is an excellent rock garden plant. *Stylophorum ohiotense* differs very little from its Japanese congener, *S. diphyllum* or *japonicum*, except that the orange-yellow colour is a shade or so deeper; *Erythronium albidum*, a pale rosy-pink Californian Dog's-tooth Violet, looks as if it would prove useful, on account of its being the latest to flower. The leaves are more mottled than those of *E. grandiflorum* or *giganteum*; *Camassia Leichtlini* is a noble bulbous plant, rising some 4 ft. high, and bearing erect spikes of greenish-white blossoms; *Narcissus apodanthus*, closely resembles the pretty *N. rupicola*; *N. Graellsii*, a

Hoop-petticoat, with sulphur-yellow blooms; and *pallidulus*, with pale yellow, reflexing-petalled flowers, were likewise attractively in flower.

Newtown Pippins in May.—We are surprised to find a good stock of Newtowns in Covent Garden, and having, contrary to expectation, a really good flavour for the time of year. The kind of Newtown we mean, if kind we are justified in calling it, is the old spotted one which the people in the market say is by far the best, and which disappeared for some years. Whether this spot means really a variety or some mark of a local influence or growth we do not know. The fruit are dotted over with bold spots, almost looking like disease. Will any of our American friends tell us whence this comes?

Sale of Orchids.—The third portion of Mr. Day's collection was disposed of at Stevens' Rooms on the 4th and 5th inst. Among the plants sold were some fine examples of rare kinds, which fetched high prices. The total amount realised at this sale was £1888. The following are a few of the highest prices: *Cypripedium Stonei* platy-tanum, one strong growth of seven leaves and young growth of four leaves, 120 guineas; *Cattleya labiata*, autumn variety, 40 gs.; *Cypripedium Spicerianum*, 42 gs.; *Saccolabium Turneri*, 24 gs.; *Aerides Lobbi*, 22 gs.; *Oncidium ornithorhynchum album*, fine plant, 36 gs.; *Angræcum Ellisi*, 15 gs.; *Masdevallia chimera*, true species, 15 gs.; *M. bella*, 16 gs.; *Odontoglossum nævium majus*, 11 gs.; *Saccolabium guttatum* var. *Holfordianum*, 21 gs.; *Aerides Fieldingi*, 16 gs.; *A. Veitchianum*, 17 gs.; *Vanda insignis*, 34 gs.; *Odontoglossum Andersonianum*, 10½ gs.; *Phalænopsis Wightiana*, rare, 16 gs.; *Aerides Fieldingi*, 22 gs.; *Masdevallia Harryana*, Bull's blood variety, 10 gs.; *Aerides Lobbi*, 22 gs.; *Cypripedium Stonei*, 11 gs.; *Lælia elegans* var. *Wolstenholmei*, 28 gs.; *L. anceps alba*, 14 gs.; *Masdevallia radiosa*, 12 gs.; *Lælia crispa superba*, 10 gs.; *Zygopetalum Gautieri*, fine plant, 8½ gs.; *Cymbidium Parishii*, 9½ gs.; *Cattleya Mendelli*, 12 gs.; *Aerides Dayanum*, 16 gs.; *Lælia Jonghiana*, 8 gs.; *Cypripedium superbians*, 9 gs.; *Phalænopsis sumatrana*, 8 gs.; *Lælia anceps alba*, 14 gs.; *Cattleya Warneri*, 16 gs.; *Odontoglossum vexillarium*, 9 gs.; *Lælia crispa elegans*, 16 gs.; *Dendrochilum filiforme*, 10 gs.; *Angræcum articulatum*, 9 gs.; *A. Ellisi*, 8½ gs.; *Dendrobium Ainsworthianum*, two plants, 8½ gs.; *Phalænopsis amabilis*, 7 gs.; *Cattleya exoniensis*, 11 gs.; *Odontoglossum Andersonianum*, 10½ gs.; *Aerides Veitchianum*, 17 gs.

WILD WATER GARDENS.

THE Thames between Sonning and Henley offers many such scenes as that here represented. The illustration shows the upper end of a long, still pool that leaves the river at a sharp bend, and, running up several hundred yards, ends in a swampy thicket of the Great Reed close to a village church. Within a few yards is a wide spreading habitat of the lovely *Villarsia*, looking like miniature yellow Water Lilies, and at the angle where the pool joins the river is a wilderness of Reeds and Sedges, Great Water Dock, and Corn Flag. Half a mile higher up, where a tributary stream runs in, are muddy shallows covered with Arrowhead and Forget-me-not, shaded by some fine Buckthorn bushes on the bank and large clumps of Sweet Sedge and Bulrush. The flower-loving navigator in a small boat, working it with some difficulty through the masses of vegetation in the narrow back waters that often for a mile or more run parallel with the river, comes upon perfect bits of wild water garden. A bed of the tropical-looking Flowering Rush rising above white Water Lilies is a sight not to be forgotten, and the fine habit of the Water Plantain, Loosestrife, Meadow Sweet, and Reedmace is seen to great advantage from the water level. The Reedmace is very beautiful when still in a green state spearing up against blue sky.

On some of the eyots, under low Pollard Willows, grows a profusion of the Summer Snowflake, which seems to delight in the wet, stiff soil, and grows with a luxuriance unknown in gardens. The Willows are pollarded at about 3 ft. from the ground, and I have seen the ripe seed vessels resting in the heads of the pollards. The stalks must lengthen after flowering, as I have never seen them so tall in bloom. The large green pods and shining black seeds as big as Peas are handsome objects. In the wide, level meadows just across the river grow fine tufts of the Clustered Bell-flower and the pink form of the common Yarrow. Here and there, but rarely, may be found the Snake's-head Fritillary, and the large blue flowers of the Meadow Crane's-bill may also be seen plentifully.



A Thames side water garden, Wargrave.

THE FLOWER GARDEN.

DAFFODILS AND OTHER SPRING FLOWERS.

IN the garden here, out of 107 different named kinds of Daffodils and Narcissi (exclusive of any of the *Polyanthus* group), I think the most beautiful is *Leedsii galanthiflorus*. This is a Daffodil of the Nonpareil section, white or sulphury white, with a crown of the same colour, differing thereby from nearly all other Daffodils, which are generally of two colours. Perhaps next to this in beauty I would put another self-coloured Daffodil, *Rev. J. B. Camm*. This is one of the *Moschatus* group, only much larger, with the divisions of the perianth exquisitely twisted, showing off the white and sulphury-white colour of the flower. *Cernuus* and its finer forms *cernuus elatus* and *cernuus pulcher* are far more beautiful than any of the other Daffodils except those I have mentioned, and can now be procured in quantity. Contrasting with these splendid white Daffodils comes the deep, all-yellow *Ajax maximus*, which I owe to Mr. Burbidge. *Lorifolius Emperor* is not to my mind to be compared in point of beauty with any of the foregoing, being too undecided in colour; nor can it rival *Bicolor Empress*, which will always hold its ground as one of the most splendid flowers grown in England or any part of the world. A huge mass of it at Belvoir would make an Orchid grower wild, considering it costs time, labour, and money to get one Orchid bloom, while these splendid fellows stand our arctic winters and look all the better for them. *Incomparabilis Stella* and *Crawfordi* are fine acquisitions, being nearly 4 in. across the bloom and growing to a great height. *Nelsoni* is a grand new Daffodil, being decidedly white and gold, and excellently modelled in form. *Nelsoni aurantius* I cannot speak of, never having been able to get it true. *Poeticus poetarum* is now coming out with its beautiful red crown, but best of all, on a par with *J. B. Camm* is *poeticus grandiflorus*, which will soon, I hope, be spread abroad. None of the Burbidgei section are yet out with me, but I think the Daffodils I have named will be found to be the pick of Mr. Barr's collection. I could wish he had not given such diabolical names to such lovely flowers. Fancy having to remember that a peerless incomparable flower is called "*Narcissus incomparabilis Leedsii expansus*," and that it is quite distinct from "*incomparabilis sulphureus Leedsii*," and from "*Leedsii expansus*." Moreover, besides the similarity in name, a great many of these new Daffodils are very similar in flower.

Of rare hardy spring flowers now in bloom here, perhaps the most satisfactory is *Magnolia stellata*, syn. *Halleana*. It has nine or ten white petals recurved from the centre, looking like some large Narcissus. I have had my young tree through two winters, and each year it has flowered profusely, never losing a bloom or bud all through the bad times of winter or spring. I expect this will be one of the best known hardy spring flowering shrubs. *Neviusia alabamensis* seems a very desirable acquisition, as the young plants stood out all through the winter, and are now breaking to the very tips of their shoots. I expect it is closely allied to *Corchorus japonicus*, and this relation of Japanese and Chinese plants to those of North America is continually obtruding itself on a gardener's mind. I wonder if anyone has noticed the resemblance of these new Central Asian Tulips—*Kolpakowskyana*, for instance (which is a great beauty), to the *Calochorti*, or Butterfly Tulips of North America. Both in aspect and structure of flower they are extraordinarily alike, and the narrowness of leaf with the slender stem heightens the resemblance. Then, too, whoever has grown *Lilium medeoloides* must be struck with the resemblance in bulb, stem,

leaf, and flower to the North American Martagon Lilies. But there are instances without end.

Anemone Robinsoniana is really splendid here, but a patch at Belvoir I thought was one of the most glorious sights I have ever seen in a garden. The shape of the flower, its growth, the extremely delicate colour, with the reddish-green leaves, make up a perfect whole. *Anemone ranunculoides nemorosa* I owe to Mr. Harpur Crewe; it is a beautiful, very pale yellow contrast to the deep yellow of *ranunculoides*. *Gentiana verna* is just coming out. The rarest and best of all the *Andromedas*, *A. japonica*, has stood out quite uninjured, and is making fine growth. Lilies are coming up finely in all directions, and *Hansoni* is already 2 ft. high, quite safe. If Mr. Fish wishes to see such a border as he professed to disbelieve in, namely, one in which successions of bloom come off the same bit of ground, and which is entirely covered with plants, let him now look at the long borders in the kitchen garden at Belvoir, or come here about the middle of July. I don't mean to have 6 in. of ground without its bulb.

Bingham, Notts.

FRANK MILES.

SPRING NOTES.

THE following notes jotted down as the various plants came into bloom may be of interest:—

Androsace carnea is not nearly so interesting as *A. Laggeri*, which it resembles in colour; it throws up stalks from 4 in. to 6 in. in height, each bearing from ten to twelve pink flowers somewhat like our *Primula farinosa*. *A. coronopifolia* is a very interesting plant. From a crown of leaves 3 in. across, one plant has thrown up fifteen stalks about 4 in. in height, each bearing on radiating branches 1 in. long, from a central boss atop, tiny flowers of the purest white, with clear yellow centres, making the plant altogether a perfect alpine gem. *A. sarmentosa*, one of the most beautiful of the *Androsaces*, is just coming into flower. It lasts a long time, and it is most interesting to watch it throughout the summer. From a small dense tuft of leaves some 2 in. across it throws up a single flower-stalk 6 in. or more in height, which carries a crown of from twelve to twenty lovely pink flowers like those of our Bird's-eye Primrose, and which change to shaded blue and purple as the petals fade. Five or six other stalks succeed this as it begins to flower, radiating also from the central boss, and bearing small tufts of leaves like the parent plant, which, as they grow larger, gradually bear down the stems until they touch the ground. They soon become rooted, so that by the time the flowers fade you have a beautiful group of new rosette-like plants around the parents, and at some 6 in. apart. This *Androsace* has lived with us on a rocky throughout the late severe winter, and is now in flower. *Dondia Epipactis* is a very quaint early flower, having three triply-lobed leaves, with a rosette of yellow umbels of flowers in the centre, the whole about 2 in. in height and as much across. *Trillium erectum* and *T. sessile* have both flowered well from bulbs imported from America. They resemble our English *Paris quadrifolia* in habit and appearance, except in having the leaves and petals in triplets, and the flowers of a curious liver-coloured purple. *Trillium grandiflorum* is just bursting into flower in our wood, where it has been all the winter. I counted over twenty blooms to-day. It is much more beautiful than either of the others. *Erythronium americanum* (the yellow Dog's-tooth Violet) was also in flower in the wood, alongside the *Trilliums*. This flower is quite new to me, and is very pretty. It is like our Dog's-tooth Violets, but the petals are of a bright citron-yellow, and the anthers and pistil thickly coated over with pink farina. It is evidently quite hardy, having had no protection whatever throughout the winter, and should be largely grown in England. *Anemone apennina* is very beautifully in flower. If left undisturbed it soon forms masses of lovely blue blossoms which seem to gain in size as it becomes established. *Cypripedium pubescens*, imported from America, succeeds very well with us. It has large yellow flowers with long, twisted lips. It appears to be quite hardy, and is much earlier than our English *Cypripediums*. *Cardamine chelidonia*, kindly sent to me last year by Mr. Max Leichtlin as a new and very rare plant, is now flowering, and is likely to be a valuable acquisition. It is quite hardy. The flower resembles that of our wild Lady's Smock, but the plant is bushy and bears a large number of flower-spikes, and the leaf is much larger. One plant in a 5-in. pot has at least a dozen flower-stalks and promises to be very beautiful.

Primula involucrata is a very pretty Indian Primrose with small oviform leaves in a dense tuft, from which rise tall stalks bearing crowns of delicate white flowers slightly tinged with pink. I was struck with the resemblance which it bears to *P. rosea* in the general habit and appearance of the plant, except in colour. There does not appear to be any difference between this and *P. Munroi*, which is also in flower here in quantity. *Polygala Chamæbuxus purpurea* is a lovely flower, the upper petals of which are rich purple, and the lower bright yellow. It is of very slow growth, our small plant of some 3 in. across, and carrying about a score of flowers, being now more than four years old. BROCKHURST.

Didsbury.

WINGED-STALKED SAND-FLLOWER.

(*AMMOBIUM ALATUM*.)

THIS is a pretty Everlasting and one that should be treated like the *Rhodanthes* and *Helichrysums*, which are so valuable for the winter decoration of vases, &c. It is an Australian plant, and has erect stems from 1½ ft. to 2 ft. high, furnished with an abundance of flower heads, about ¾ in. across, of silvery whiteness, with the exception of the yellow central tuft of florets. It should



Winged-stalked Sand-flower (*Ammobium alatum*).

be treated as a hardy annual, though the root is perennial if protected from frost. It likes a warm situation and a light soil, and flowers from July to October. W. G.

A WILD GARDEN IN A SCOTCH LAKE.

I HAVE an island in the west of Scotland in a fresh-water lake in Argyle, about 18 acres in extent, covered with large trees and with good land-peat and sandy loam and the leaf-mould of many years. Nothing has ever yet been cultivated on the island. What plants would you suggest that would live through the winter covered with straw and leaves or even without any artificial protection? The coarsest and largest would be preferable, as the whole would be in a wild garden state by the shore and beside the shrubberies. Any information would be most acceptable. C.

[In the position you name we should go in wholly for hardy plants and what we call the wild garden. A great number of the plants of the northern world would live in such a position as you mention without any care whatever, and produce beautiful effects if planted with taste and judgment. The woody and open places should have different types of vegetation. Some preparation would be wanted to establish certain types—that is to say, if the work were done by one who did not know exactly the habits of a number of plants not commonly seen in gardens, and who would know how and where to place the plants that they would succeed by themselves. Some digging and clearing of the ground would be required—indeed, is necessary—in any case for full success. As regards procuring the different subjects, you must get them from various sources—from seed, from the various nurserymen that grow hardy flowers, from friends, and the best way to begin is to form a little nursery of your own, in which you may collect the different types and get a stock ready. The stouter and handsomer hardy plants would, we say, rejoice in such a position, as, for example, the common perennial Lupin, the large German Iris, and the Globe flowers, with many others. In the woody parts some beautiful plants might be grown

that seldom succeed in our open gardens, such as the *Trillium*, and in the peaty ones some of the finer hardy Orchids, and also the Lillies and fair flowers without end. Two things you must guard against particularly, *i.e.*, having one coarse type of vegetation seen everywhere, such as the Giant Cow Parsnip and the common dotting *Julienne* soup mixture. Have all the variety you can, but let each spot tell its own story. Here on the floor of a bare wood, blue *Anemones* (*Anemone apennina*); next in a shady one of Pines, the hardy American Maiden-hair Fern and the delicate wood plants of northern countries, such as the *Pyrolas* and the *Linnæa*; next, in a not too dense plantation of Pines in a shady place, a carpet of the *Mayflower* of New England; then on a rocky knoll, if there be one, a colony of wild *Roses*; let each spot have its own characteristic vegetation. One or two things, or even three, may succeed or go with each other in the same ground, but the dotting about of everything together will not do at all. Yet, no matter what one may say, that is pretty sure to be the way the thing will be done for many years to come. An early plant may precede a late one in the same ground; some pretty alpine or wood plants may carpet the ground over tall bulbous flowers, and there may be other thoughtful combinations of that sort, but no mixed border. The thing in its best aspects is as practicable as any prosaic practice known to all the purblind who sometimes smile at this notion, and suppose it to be letting a garden run wild, or showing a muddle mixture of annuals in some neglected spot.]

GARDENING ON THE GRASS.

THIS may be done with early-flowering bulbs, not on a lawn kept closely cut, but on a lawn to be made into hay. On such a lawn in front of my house there is a large cross of *St. George* (12 ft.), the arms 1 ft. wide, composed of the large double *Daffodils*; a little beyond there is a 10-ft. circle of single *Pseudo-Narcissus*, three deep, intermixed with the blue *Anemone alpina*; beyond, all in line, are the initials of my name—H. T. E. The letters are 10 ft. long, with bulbs three deep in rows of the great double *Narcissus*; to compose this 500 bulbs were planted. Beyond these is a large four-pointed star, composed of the peerless *N. incomparabilis*. There are besides patches here and there of *N. orientalis*, &c. When once planted, these designs furnish a perpetual treat to all beholders, without any trouble to any person, and the spots are all invisible after the hay is cleared away. Such things are to be made in the autumn. First mark out the designs with line and rod; then take up the turf 1 ft. wide and away with it; dig up the under soil and prepare it for the bulbs; having planted them, level the whole and sow Grass seed, and the job is done, and no doubt will last a year. No fear of the destructive spade of the gardener, who dislikes all perennials in beds or borders. Here there is no trace of them to be seen after the Grass is up. H. T. ELLACOMBE.

Clyst St. George, Devon.

DAFFODILS IN PARKS.

IN passing through Sussex the other day we came upon several fields of *Daffodils*, and were charmed with their beauty. It was at the time of the harsh east winds, and yet not a speck or trace of decay of any kind was visible among them. They were not in tufts or groups, as they may be seen in some woods or drives, but scattered through the Grass, as if they had taken their chance in the struggle for life with the other vegetation, and perhaps been mown down repeatedly. They were somewhat smaller than usual, perhaps owing to this fact, but in point of beauty we have seen nothing to surpass them, as they danced in the sun and realised Wordsworth's poem to the full, saving the lake. Having passed through several parks soon afterwards, not seeing any of this glorious flower life in their wide breadths of turf, we asked ourselves why, if this occurs by accident in secluded farms, it should not be made a feature of in our parks here and there. Nothing would be so easy, and no effect of the whole floral year more bright or cheering. These *Daffodils* are fitted to our climate in a peculiar way, and as no other flowers are; harsh winds or rains may disturb others, but these seem regardless of change. The little hardy *Hepatica* of the mountains of Europe is brave enough, and yet it may have curled up, flowers and all, if much exposed to a long-continued east wind, of which the *Daffodils* take no notice. Therefore we say to those who have means, as so many of our readers have, to enjoy this bold and noble phase of gardening, Consider the *Daffodils*. It is not only the old and common kind which we may establish, but a variety of other kinds, no less beautiful and distinct from the common one. They will prolong the season of bloom and give a fine variety of form. Of the bolder kinds suited for park scenery we should name *Narcissus maximus*, *N. incomparabilis* and its forms, *N. poeticus* and its varieties (they succeed each other in blossoming), *N. odours* (the

larger Jonquill), *N. bicolor* and the forms nearly allied to it, *N. cernuus* (most graceful). Not a few others would do, only avoiding the Italian kinds and the alpine ones and Spanish species, even though some of the *Polyanthus* *Narcissi* become freely naturalised in Devon and Cornwall.—*Field*.

NOTES FROM VIENNA.

At the Vienna spring flower show, a collection of alpine plants of the Imperial Garden of Innsbruck was very interesting. I think it opportune to send a few notes of it. The plants were cultivated in pots, and forwarded into growth, so that some of them were in flower. Curious were the tiny *Chamaeorchis alpina*, the plants, with flowers, 2 in. high. Dwarf, creeping Willows were represented by four species, viz., *Salix herbacea*, *S. reticulata*, *S. retusa*, *S. serpyllifolia*. *Statice alpina*, *Scabiosa lucida*, *Valeriana montana*, the last one in full bloom, were shown in bold masses; more interesting were some pots of *Valeriana alpina* and *V. saxatilis*. Composites were plentiful: Edelweiss, fourteen pots in full bloom; besides this, *Gnaphalium lupinum*, *G. carpaticum*; various alpine *Artemisias*, such as *A. glacialis*, *A. mutellina*, *A. spicata*; the beautiful *Aronicum scorpioides*, in flower, the rich golden floral whorls exceedingly attractive. Of the same family I observed *Homogyne alpina*, *Bellidiastrum Michelli*, *Erigeron uniflorum*, *Solidago alpestris*, *Achillea Clavennæ* and *atrata*, *A. moschata*, *Chrysanthemum coronopifolium*, *Aronicum glaciale*, *Senecio incanus*, *S. Doronicum*, *Crepis hybrida*, *Saussurea alpina*, *S. pygmæa*, and various *Hieraciums*. Of *Gentians* six sorts were shown, some in bloom. Among many other alpine plants very attractive were—*Veronica saxatilis*, a dwarf, bush-like, creeping plant, with pretty blue flowers; *V. bellidioides*, *V. alpina*, *Androsace obtusifolia*, *A. lactea*, *Primula farinosa*, *P. hirsuta*, *P. hirsuta alba*, *P. minima*, *Soldanella alpina*, *Androsace glacialis*, *A. helvetica*, *Aretica vitaliana*, *Primula longiflora*, *P. glutinosa*, *P. Floerkeana*, *Rhododendron hirsutum*, *R. ferrugineum*, and *Azalea procumbens*; *Saxifraga Kauffmanni*, *cæsia*, *oppositifolia*, *muscoidea*, *androsacea*, *Clusi*, *rotundifolia*, *orientalis*, *trifurcata*, *pedata*, *elatori*, *crustata*, *mutata*, *bryoides*, *Burseriana*, *tenella*, and *biflora*; *Anemone vernalis*, *A. baldensis*, *Ranunculus alpestris*, *R. glacialis*, *R. montanus*, *Arabis pumila*, *A. cœrulea*, *Draba frigida*, *Kerneria saxatilis*, *Dianthus glacialis*, and *D. alpinus*. One may imagine what alpine plants may look like when seen in their full development.

LOUIS KROPATSCH.

Laxenburg, April 22, 1881.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Epigæa repens at Chester.—From recent communications in THE GARDEN, it would appear that this beautiful North American plant is not readily grown or successfully flowered. In a notice of plants in bloom at Glasnevin, given in THE GARDEN of April 30, Mr. Moore remarks that he envies the success of Mr. Wilson with the *Epigæa*, as he (Mr. Moore) had only been able to keep it alive, an achievement which he had previously regarded with contented satisfaction. I may, therefore, with some chance of beneficial result, refer to a mode of culture practised by the late Mr. Francis Dickson in his grounds, at the Upton Nurseries, Chester. Mr. Dickson took an especial interest in the cultivation of such plants as the *Epigæa*, for which a tolerably damp situation in a secluded part of the nursery was selected. This was laid out in beds, divided by hedges 5 ft. or 6 ft. high, running east and west in parallel lines, planted about 6 ft. apart, and in this sheltered home—a sanctum to its possessor, as you may suppose—lived, thrived, and flowered not only *Epigæa repens*, but many other attractive plants seldom seen in the open with the robustness of healthy vigour.—*B.*

Dividing Primroses.—I find that many growers of Primroses are afraid to divide their plants, from fear of killing them, and by letting them stand too long in one position they lose the opportunity of increasing their stock and improving the flowering condition of the plants. We transplant the majority of our Primroses every other year, except those in the woodland garden, where they get annually covered with fallen leaves, and, by having abundance of room, form glorious groups that when in flower are very lovely. But with our best coloured singles and doubles we take them in rotation as they cease flowering, lift them carefully, and divide them into as many pieces as there are crowns, and, after planting all we require in the flower garden, we replant the remainder in nursery lines in a cool, partially shaded spot in the kitchen or reserve garden, letting the roots run deep, and partially covering the crown with soil; for I always prefer to see the leaves half buried in any portion of the old root-stock being visible, for they are sure to grow upward fast enough. I press them in very firmly, and keep them moist until

well rooted, after which they are safe. We have just planted several hundred double and single whites, crimsons, &c., between young Currant bushes and under the shade of fruit trees, where they will make fine clumps with which to form plantations in autumn. Any that are not true should be marked when in flower, so as to get each sort distinct when transplanted; and if anyone doubts the utility of lifting and dividing, I may mention that we have large beds of both Primroses and Polyanthus that have been entirely propagated from one seedling, selected from batches that are yearly raised, and by selection and division we can keep up a large stock of these charming spring flowers; all not worth retaining are put out in woods or coppices, for one can hardly be overdone with these best of all spring flowers, that never fail, let the season be what it may, to cheer us with lovely blossoms. The season, too, will be greatly prolonged as we get a stock of *Primula cortusoides amœna* and its varieties to succeed the ordinary types.—*J. GROOM.*

Laced Auriculas.—Of these but few have yet been seen, owing to their cultivation being in few hands; but as they seed freely, and are readily reproduced from seed, it is obvious that anyone who may choose to invest in a packet of seed, and has a frame and a few small pots at disposal, may soon work up a stock of these Auriculas. It is even yet a good time to sow seed, although most growers would prefer to get strong plants to flower next spring. If sown in November in a shallow pan in a fine sandy soil, and covered with a broad piece of glass, the seed will soon germinate, and in a cold frame the seedlings will push on rapidly. When large enough to handle, prick them out thinly into other pans, and from these again shift into small 3-in. pots, using crushed charcoal for drainage and sweet sandy soil. All Auriculas prefer small pots at the first, and bloom better and with more refinement in markings and colour if the roots can feel the sides of the pot well. The features of a laced Auricula are a proper thrum eye—this is essential to all good Auricula flowers—the anthers grouped in the tube and not too prominent. This is not an arbitrary point; it is one that commends itself to all who have an eye for form and beauty. The centre should be round, and either white, cream, or golden, although the latter tint is by far the most striking. The ground may be of any dark hue, margined, or laced with white or some allied colour, but the lacing must be clear and defined, and the flower altogether perfectly flat and circular. These are the florist's requirements; but if only one or two from a batch come up to the standard, all will be beautiful, either for pots or the open border.—*A. D.*

Cardamine or Cuckoo Flower.—In the woodland garden this pretty native plant is just now most effective. It is located under deciduous trees, where the vegetation grows very luxuriantly, a rookery being overhead; and the Cardamine is also extremely tall and stout in the flower-stalks, proving that even native plants that go by the name of weeds are susceptible of improvement when generously treated. This group covers nearly half an acre of land, and a more lovely bed it would be difficult to imagine. The soft Pink, when seen in such quantities, is particularly pleasing. We are about to add Bluebells to this group, for, with only a minimum of labour, such waste places may be turned to good account, and they form a most interesting addition to our spring gardens.—*J. G., Linton.*

Cornish Narcissi.—The past month or so almost every garden has been looking gay with Narcissi. I send a few notes anent some that are naturalised in a wood near here; the following are the best: *N. incomparabilis aurantius fl.-pl.*—This is the well-known "Butter and Eggs" or the Orange Phoenix of the Dutch growers. It is a very good variety for forcing, coming in about the latter part of January, and when grown in-doors the colours are much softer and more decided than when grown outside. It is a splendid Daffodil. *N. Tazetta var. citrinus* is one of the purest of out-door grown varieties, forming a handsome bed. *N. Telemonius fl.-pl.* is a curious double golden-yellow and fairly pretty form; the flowers are of a uniform size and shape. Of *N. Tazetta* we have a variety with a great many flowers on pedicels 3 in. or 4 in. The individual flowers are small, yellow. All the above sorts would look well in a wild garden, and must ere long take a more prominent place in gardens than they do at present.—*W. ROBERTS, Penzance.*

Rapid Growth of *Oxyripidium pubescens*.—About the middle of last month I received from Messrs. Woolson & Co., Passaic, N.J., six roots of *C. pubescens*; they were potted in leaf-mould and sandy peat and placed in a cold house, when they at once started into growth, and there are now three fully expanded flowers and signs of more.—*A. KINGSMILL, Eastcot.*

Hyacinths in the Open Ground.—Some five or six years ago, by some means or other, a Hyacinth root got into my Rose garden and came up in the middle of one of my dwarf trees. I did not disturb it, and year by year it has come up, increasing in quantity until this year, when there were eight spikes of really good blooms

from this one root. It has evidently spread much, but how I have not examined. Evidently, therefore, we may leave our Hyacinth roots in the ground without troubling ourselves much about them.—DELTA.

The Chilean Crocus (*Tecophylaea cyanocrocus*).—I remember seeing this truly beautiful spring-flowering bulbous plant several years ago in the York Nurseries. It was grown on a shelf close to the glass in one of the cool greenhouses. The plants evidently seemed difficult to cultivate, as they only flowered twice, when they gradually dwindled away and died. Perhaps M. Max Leichtlin will have the kindness to give us some hints as to the best way in which to cultivate this lovely and most welcome bulb.—R. P.

THE INDOOR GARDEN.

DOUBLE VARIETY OF JASMINUM SAMBAC. (JASMINUM SAMBAC FLORE-PLENO.)

THERE are few things in which the tastes of people differ more than in the appreciation of scents. The strong perfumes of such flowers as Gardenias, Musk, or *Lilium auratum* are absolutely offensive to



Jasminum Sambac fl.-pl.

some, whilst others prefer them to those that are less powerful. Some, again, like aromatic odours, of which the Clove Carnation and Lavender may be taken as examples; but whatever preferences may exist for the smell of any particular flower, there can be little question that this Jasmine holds a front rank for its scent, which is quite distinct from that of any other flower I am acquainted with. The plant comes from the East Indies; its flowers are ivory-white in colour, double, the petals much pointed, which takes off the formality in appearance generally present in flowers that have rounded, smooth-edged petals. It is a remarkably free bloomer, but, like most others that continue in flower for a long period, is never clothed with such a profusion at one time as those that produce blossoms from each shoot simultaneously. The flowers are borne on short lateral shoots, usually furnished with a few small leaves, that proceed from the axils of the leaves on the stronger growths, which in a healthy plant generally keep on blooming all through the summer and autumn, so long as growth is being made; this is an advantage, as it admits of almost every bit of bloom it makes being utilised for cutting, for which purpose it is the best adapted, as the successional habit of blooming does not admit of its ever making so great a display on the plant as if the flowers opened altogether.

Cuttings strike easily when they can be obtained with some freedom of growth in them, but the shoots that are disposed to form flowers as soon as they have attained 1 in. or 2 in. in length, even if they make roots, are a long time before they can be induced to grow freely; in the spring about the beginning of April cuttings of the right description may generally be had; these should be a few inches in length, but not with the wood too hard or matured; take them off with a heel and put them singly in small pots three parts filled with a mixture of three-fourths sand to one of loam, the surface all sand; keep moist, close, and shaded, in a temperature of 70° or a little more; they will strike in a few weeks, when use them to bear the full air of the house and stand them on a shelf or some other moderately light place. When a fair quantity of roots are made move them into

3-in. or 4-in. pots, using good turfy loam with some sand; they will now do best with a brisk stove heat, giving air in the day-time with a little shade when the sun is powerful, syringe daily, maintaining a moderately moist atmosphere. After a few inches of growth has been made, pinch out the points of the shoots, for the plant has naturally a thin erect habit of growth, and to induce the formation of sufficient branches it is necessary to resort to stopping, although it is by no means desirable to attempt to restrict it to a bush-like form. It is best grown round a pillar, or wound round a few tall sticks inserted just within the pot; being a spare root, it must not have too much root room, either in a pot or planted out. In July move them into pots 3 in. or 4 in. larger, and again stop the shoots. Treat generally through the summer as recommended until the middle of September, when cease shading, give more air, less moisture in the atmosphere, and reduce the temperature; during the winter 60° or 65° in the night will be enough, only just keeping the soil a little moist. Towards the end of February increase the warmth and when growth has fairly begun again pinch out the points of the shoots, and move to pots 2 in. or 3 in. larger. In the matter of heat, moisture, air, and shade treat as in the preceding summer; they will this season bloom from all the growth they make.

When planted out, the soil to which their roots have access must be limited to a small space, or it will most likely get sour. If confined to pots, all they want in subsequent years is to give more room as it is wanted, not attempting to shake out the plants or disturb the roots more than can be avoided. A little manure water in a weak state will be an assistance. The plants will last for many years. There is a single-flowered form of this Jasmine differing little in its appearance except in the flowers. It succeeds under similar treatment to the kind under notice. This Jasmine is liable to the attacks of most insects that affect plants grown in heat. Thrips and red spider, which are partial to the leaves, can be kept down by syringing. If any insects of a worse description, such as scale or mealy bug, make their appearance, sponge with insecticide, finishing with clean water.

T. BAINES

LOASA VULCANICA.

ONE of the prettiest of the few species of *Loasa* in cultivation is this new kind, which was, we believe, first distributed by Mr. Thompson, of Ipswich, under the name of *L. Wallisi*. It grows about 1 yd. high, and is furnished with elegantly-cut foliage, beset, as on all the other species, with numerous stinging hairs, on which account it requires to be handled as cautiously as one would a Nettle. The flowers, which are about 1 in. across, have five pure white petals of a singular boat-like shape. The centre is marked with white, orange, and red, arranged in concentric lines. It is a half hardy annual, and may be cultivated very successfully in the open border in rich, deep soil, and for many weeks in summer it is profusely laden with flowers. It also makes a pretty pot plant, and as such we lately saw some fine examples of it in Sir George Macleay's garden at Pendell Court, Bletchingley, growing in a



Loasa vulcanica.

cool greenhouse. For pot culture the seeds require to be sown in autumn, and the plants to be grown gradually on through the winter, when they will flower in early spring.

W. G.

THE COOL FLOWER HOUSE.

I WAS much interested in the discussion which took place some time ago in THE GARDEN for and against cool or unheated greenhouses. Being very anxious to grow many plants which, in this cold climate, will not live without protection, I was glad to see that several people thought much could be done under glass without artificial heat. I began to make my own experiments about this time last year, and as I think I have been very successful I wish to let others know what I have done, in the hope that it may be of use to people like myself, to whom expense is an object, and who can neither put up houses, with all the latest improvements, nor have men and fuel to keep up such houses when built. My beginning was very small; it was a lean-to house, 7 ft. by 10 ft., with a south aspect, and having a Vine border outside, my little house being a continuation of the Vinery. I planted a *Maréchal Niel* Rose in the Vine border, and trained it up inside. It was a very small plant, struck from a cutting the year before. I made an inside border, in which I planted several Ferns and Lycopods, which, though not the most delicate, would not grow outside in this part of Ireland. I also had some shelves made, and filled them with zonal Pelargoniums and Fuchsias. The results were, the *Maréchal Niel* did not flower, but grew well, and is now covered with buds, some of which will be open very soon; the Ferns are all alive and throwing up strong fronds; the Lycopod is fresh and green; and the Pelargoniums and Fuchsias look well, the former already showing the colour of their flower-buds. I should add that during the very severe frost I had an old carpet drawn over the glass at night. I am so pleased with this that I am making a larger house, in which I shall have room for more variety of plants, and I should be obliged if any one will give me advice or suggestions about planting it. I have made a peat bank at the back of this new structure, which is also a lean-to, facing the south, and in this inside bank I mean to plant Ferns, &c. The size of the house is 25 ft. long by 8 ft. wide.

C. E. T.

Antrim.

PLANTS FOR A SUNLESS GREENHOUSE.

THE best plants for a sunless greenhouse are Camellias, which may be used in a variety of ways, either planted out to clothe the walls as a background, for Ferns and other ornamental foliaged subjects, or grown in pots or tubs as centres of groups, for which purpose they are well fitted, as their dark leaves show up in pleasing contrast with others that are variegated like those of the *Coprosma Baueriana* and *Eurya latifolia variegata*, both of which are great acquisitions in any house, as they are exceedingly showy, and always look bright and in condition the whole year round. Another plant that will do well almost anywhere is the *Aspidistra lurida variegata*, which succeeds admirably in a window or hall, where there is not a great deal of light, and holds its own in a gas-heated atmosphere where few others would live. All it requires is plenty of water and to have its leaves sponged occasionally, so as to keep them free from dust, which, as they are large and smooth, is a very easy matter, as the sponge may be quickly run up them without fear of harm. Not only will the *Aspidistra* stand an impure atmosphere, but it needs little soil and may be kept in the same pot for years. *Imantophyllum miniatum* is nearly as accommodating in this respect, and, besides having fine, dark, healthy-looking foliage, bears magnificent heads of orange-scarlet, Lily-like flowers. So fine and showy is this plant, that it should be in every house, and for window culture I can specially recommend it, as plants there generally get killed by mistaken kindness in giving so much water, but as the *Imantophyllum* wedges the pot it is in full of roots, and is half aquatic in its nature, it cannot well be overdone with moisture, as it takes up a great deal in the twenty-four hours. *Calla æthiopica* is likewise a desirable plant, thriving in sunshine or shade, and sending up its stately flowers at a season when white flowers are most acceptable.

As to Ferns that may be grown in a sunless greenhouse, their name is legion, and I will only mention a few of the best, among which are the *Aspleniums*, such as *A. bulbiferum*, *A. biforme*, *A. flaccidum*, *A. canariense*, and *A. foniculaceum*. These are all free growers and very ornamental, especially *A. biforme* and *A. flaccidum*, which are gracefully arching, and therefore most effective in vases. For large houses where there is plenty of room, *Woodwardia radicans* is grand, as is also *W. orientalis*, which is not so spreading, but very handsome and noble looking, the young fronds when they first come showing a good deal of colour. *Phlebodium aristatum* is likewise very distinct, the fronds of this being of a rich glaucous silvery hue that show up in pleasing contrast with the deep green of others. *Lomaria chilensis* is a fine, bold looking Fern, and *Cyrtomium falcatum* must not be forgotten, as that stands among Ferns for distinctness of character, like the Holly among evergreens, and, like that shrub, it is bright and cheery looking the

whole year through. *Adiantum cuneatum*, the popular Maidenhair, should always have a space, and *Pteris cretica albo-lineata* ought not to be left out of the list, as that is a very beautiful kind. Seedling tree Ferns are stately objects, and when they get too large to be accommodated may generally be got rid of to advantage in exchange for others. The most serviceable among these are *Dicksonia antarctica*, *D. squarrosa*, and *Cyathea dealbata*, and to associate with these there are the Palms, such as *Chamærops Fortunei*, *Areca sapida*, *Cocos Weddelliana* and *Latania borbonica*, all of which may be kept in a small state and healthy for years, provided they are never allowed to get too dry at their roots. The New Zealand Flax, *Phormium tenax*, and its variegated forms are also fine plants for mixing with others, and more particularly with Palms and Ferns, with which they associate well, and then again there are *Aralia Sieboldi* and *A. Sieboldi variegata*, both striking in size of leaf and appearance.

If climbers are wanted nothing can surpass the *Lapagerias*, which love shade, and to see these at their best they should be planted near each other, that their shoots may commingle, and then, when in flower, the effect of the one is greatly heightened by the contrast of colour with the other, as the red and white blend well together.

S. D.

CROSSING CARNATIONS AND PICOTEEES.

A CHOICE double Carnation seldom produces seed of itself, so artificial means must be used to fertilise the plant in order to obtain new varieties. The pollen must be taken from one flower with a small brush, and applied carefully, if necessary, on several successive mornings, to the stigma of the other, from which you intend to save seed. This operation must be performed a few days after the flower has been fully open. If it has been successful the flower will close up and wither in a day or two afterwards. You must watch the plants which you have crossed, and when you observe that the bloom is decayed, and the pod is commencing to swell, carefully remove the petals (which, if left, form a domicile for earwigs and other insect pests) one by one; and after cutting away the sepals, make little slits down the calyx to prevent an accumulation of moisture. Be very careful in these last operations not to damage the style or pistil in the slightest degree. When the seed-pod is ripe, which will be about the end of September to the middle of October, it should be gathered, labelled, and laid by carefully in a dry place until next March. Do not be in any hurry to gather it; leave it on the plant till both stalk and pod are thoroughly dry and yellow. Keep the seed-pod entire till next year; the seeds are always better kept thus. If you like you can shell them out about next January in the long evenings, keeping each crossing distinct, and counting and labelling each lot of seed. Be careful about the flowers you cross with one another; cross flakes with flakes, bizarres with bizarres, not flakes with bizarres, and so on indiscriminately. In the same way with Picotees, cross heavy edges with heavy edges, light with light—the object being, of course, always to obtain the good qualities of one and the good qualities of another combined in the new seedling.

Crossing is performed as follows: The ovary is situated at the bottom of the calyx (or sheath of the flower), the pistil with its horns or styles is attached to it, and the anthers (which bear the pollen) are situated among and under the petals of the flower. In some varieties the anthers rise well in the centre of the flower, and in others they are situated far down in the pod. Before the anthers have burst and shed their pollen carefully remove several of the centre petals together with the anthers of the flower from which you intend to produce the seed, being very careful not to damage the pistil. When the styles show from the viscid condition of their extremities that they are in a condition to be fertilised, carefully remove a little of the pollen from the anthers of the bloom with which you wish to fertilise the seed bearer, and delicately apply it to the tips of the styles of the latter. This is best done with a fine camel's-hair brush drawn to a point between the lips. The operation is then complete, and until the pod is ripe and dry the plant must be carefully sheltered from wet, which is always fatal to the ripening seed. Until the cross has been satisfactorily effected the plants must be kept well shaded to prevent the evaporation of moisture on the tips of the styles which is essential to fertilisation. Pollen, in the case of some varieties, is very scarce, and, indeed, on a first examination often none will be apparently visible; in these cases an ingenious mode of procedure is recommended, viz., working the brush deep down among the petals in the pod, whence it will generally return bringing up some pollen.

If you are troubled with thrips, which are sometimes terrible depredators of the pollen, cut the male bloom before complete expansion, and then if placed in water in a cool room it will ripen its pollen for your purpose. A careful record should be kept of the circumstances

of the cross, and for this purpose a book may be kept, in which every crossing is registered with a number; and a little parchment ticket, such as jewellers use, may be tied on the stalk of the seed-bearer as soon as the cross has been effected, with a number on it corresponding to the number of the paragraph in the book which refers to that particular pod. The parents of the seed must of course be chosen as carefully (to compare great things with small) as those of a racehorse, none but the most perfect or distinctive blooms being allowed to fertilise blooms of equally sterling qualities. Let crossing be done as early in the season as possible, to give the plants the best opportunity of ripening their seed. Sometimes you will find that a variety throws up no pistil. In this case the centre petals must be carefully removed, the pollen from the male parent lodged nicely on the top of the rudimentary ovary or pericarp, from which the styles, if they did exist, would naturally rise. GIROFLE.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Hot-air Heating.—Many are beginning to acknowledge the fact that heating by hot water is an expensive system, and are casting about to find something better. This has caused a system of heating by means of hot water and air combined to become invested with considerable interest; but upon mature reflection I cannot but think that it is wrong. Many shrink from putting up glass because the expense of boilers and pipes is so great; yet adding an additional pipe for hot air considerably increases the first cost, and by bringing the outside air through this pipe, the consumption of fuel must be increased. What is wanted is a good and efficient system of warming the atmosphere in plant-houses at a minimum cost, and some such system I saw in use at Mr. Gower's nursery the other day, but I am not posted up in the details of its working. The original cost, I was told, is very trifling, and the consumption of fuel about half that required for an ordinary boiler. — B. P.

Tabernamontana coronaria.—Of this beautiful stove shrub we grow a few with our Gardenias, and the quantity of blooms that one plant annually yields is quite three times that of the Gardenias. In many cases, too, the absence of perfume is a recommendation rather than a detraction, as the scent of a large quantity of Gardenia flowers in floral decorations becomes overpowering, and in hand or button-hole bouquets it is desirable to have a choice of scented as well as scentless flowers to suit the tastes of all. The *Tabernamontana* succeeds under conditions exactly similar to those suited to the Gardenias, but, like the latter, some varieties are much more floriferous than others. The best sort we have we call *T. coronaria*, but it exactly corresponds with one alluded to in *THE GARDEN* (p. 414) under the name of *T. camassa*. The foliage is of moderate size, and the heads of flower average from twelve to fifteen in a bunch, while some varieties with much larger foliage only produce two or three flowers in a bunch. — JAMES GROOM.

Chorozema elegans.—This is useful for clothing back walls of cool Vineries or greenhouses. It has been in flower with me since the end of February, and by its appearance will last some time yet. Its racemes of bright flowers hanging down the sides of the wall give a cheerful aspect to the house, and, flowering as it does so freely, it has been much admired. When once it has reached the top of the wall it should be cut back when done blooming, as it grows freely, and produces plenty of young wood upon which the succeeding crop of flowers depends. I may add that this, like many other climbers, should not be nailed to the wall; wires stretched across about 10 in. apart are quite sufficient support, and when hanging over these the plant is much more attractive than when nailed in closely. It is easily kept clean by well syringing it after it has flowered. — J. S. T.

Planting Out Dracænas.—This system, though not generally adopted in England, is extensively practised in Continental nurseries and gardens, and as regards its results we have ample proof in the large importations of greenhouse varieties which annually reach us. The stove varieties can also be grown successfully in this way. Although they grow so rapidly when planted out, they lose neither brilliancy of colour nor symmetry; on the contrary, each leaf that is developed seems to surpass its predecessor in beauty of colour; the size of the foliage is also considerably greater than can be obtained by the ordinary method of pot culture. Small plants of such varieties as *stricta* and *terminalis*, with six and eight leaves, planted out in spring, grow into noble specimens by the autumn, attaining a height of about 3 ft. Now is a good time to plant out a batch of well-rooted cuttings, or even plants six or nine months old. For stove varieties, a house or heated pit being available, construct a bed on a well drained base; the structure should be heated sufficiently to maintain a temperature of about from 60° to 65° by night. The bed should be from 1 ft. to 18 in. deep, and should con-

sist of good peat, loam, and leaf-mould in equal proportions, with a liberal addition of coarse silver sand; these well incorporated will be found to suit their requirements. Upright growing varieties may be planted 18 in. apart each way, and the more spreading kinds 2 ft. It is advisable to have the plants well established prior to planting them out in not less than 5-in. pots, as when planted out with a ball well filled with roots, a good supply of fibrous roots will be concentrated round its base, thus facilitating the process of lifting. Gradually inure the plants to as much sun as they will safely stand, shading lightly during the hottest parts of the day; growing under these circumstances, the plants will be benefited by more air than is usually given them when in pots. Syringe thoroughly twice a day, and a liberal supply of water will be required at the root in hot weather. When lifted and potted, the application of a gentle bottom heat for two or three weeks will assist them to establish themselves in the pots, when they will be found to retain their beauty for a great length of time. — R. G.

NOTES FROM BELGIUM.

I SELDOM see in *THE GARDEN* particulars of what is going on in Belgium. The few people who do visit that wonderful gardening country appear to keep the information very much to themselves, for anyone who is observant cannot fail to be struck with the difference in many ways of the modes of saving labour there adopted over and above the routine usual in this country. Although wages are very low there compared with rates in England, expense is not spared in reference to plant culture. The plan adopted is to plunge nearly all the pots in tan up to the rim of the pot. When examined and cleaned the borders are broken down and remade with fresh tan, a plan which dispenses with the necessity of continually watering pot plants, and, as a result, washing all the goodness out of the soil, which by this plan remains comparatively fresh for a great length of time. Plants purchased in England have produced in Belgium leaves nearly twice the size those ever grown in England. I specially refer to the different varieties of *Anthurium*. Palms are pricked out into 2-in. pots and plunged in tan, they are next moved into a 2½-in. pot, which is again plunged, and thus large plants are grown in very small-sized pots; the growth is much more rapid, and the leaves are beautifully green.

In Messrs. Van Houtte's establishment I was shown evidence of what severe weather they had passed through in the shape of large *Rhododendrons* killed by frost. At the time of my visit the east wind was driving the sand in clouds over the grounds and spoiling the appearance of the beds of *Hyacinths*. It was a most interesting sight to see acres of *Hyacinths* in different beds in full bloom. Great care is taken to mark all the varieties which do not come true, and to arrange the different shades in uniform beds. It does strike one as strange that there is not more enterprise in England with regard to *Hyacinths* and other bulbous plants, for there are thousands of acres near a river or a railway (where coals can be got cheap) that would be equally advantageous for both bulbs and *Azaleas*, &c. M. Jules de Cock informed me that he had exported this year very nearly 30,000 *Azaleas*. The secret with this plant, which I have seen growing wild in its native habitat, is to keep it in shade, and with the roots in moisture. The plan they adopt for making all the flowers open at one time is to cut off the whole of the shoots and flowers of any plant that is going to open irregularly, and put it by until next year.

Clivia miniata is now engaging much attention, and seedlings of it are watched with the utmost interest. There is really no market in Belgium for plants; the whole are dispatched to other parts of Europe. France is the great market for large-foliaged plants, and I saw the other day, in some of the Paris sitting-rooms and libraries, Palms of such a size that when the pot was placed upon a pedestal or table one could walk underneath the leaves. The heads of the trees have to be tied up before they can be taken through the doors into the rooms. The effect of people sitting under the shade of these trees, with a fire burning in the grate, and gas illuminating the foliage, with sometimes a coloured lamp glass on a wall bracket, is most striking. I am not now referring to plants brought in for one day, or for a party, but plants that are kept regularly in sitting-rooms. Germany also absorbs a large quantity of these trees. For *Azaleas* and bulbous plants the great market is England. At Messrs. Van Houtte's establishment a large staff of men and women are kept for

drawing and colouring plates of plants and flowers, which they print on the premises. Judging from what I saw, I should think there were at least twenty people thus employed.

M. Jules Van Mol, at Messrs. J. Linden's establishment, explained to me fully many of the very interesting and useful commercial plants which M. Linden has collected. The plants are classed and kept in different houses, but everywhere I noticed the system of plunging in tan adopted, which saves so much time and trouble. They have no fewer than seventeen different varieties of *Ficus* in their collections, and some others that are not named.

Many advertisements having appeared seeking to dispose of the well-known establishment of M. Jean Nuytens Verschaffelt, which covers so many acres and contains such an interesting collection of plants, I asked M. Verschaffelt what price he expected really to get for the collection, and he replied, "At least £6000." He further stated that he would let the whole of the premises with the glass at a rent of £140 per year to the purchaser, which includes goodwill; so that any one with a small capital could make arrangements to take over this business, which was at one time second to none in Europe. One can, however, see, when comparing it with the establishments of Messrs. Linden and Van Houtte, that it requires the fostering care so necessary to success. It must have been a great blow to M. Verschaffelt when he lost his son, so remarkably talented in languages and having such a perfect knowledge of plants.

An English gentleman resident at Bruges, who rents large gardens in the city and neighbourhood, told me that there is no market in Belgium for fruit. Prices rule at such a rate that it hardly pays for the picking. The Currants are of enormous size—nearly as large as Cherries—and surely would pay well to send to England. I suggested his trying to preserve them, but, owing to the high duty on sugar, that is quite out of the question. This gentleman has lately covered one south wall with 10,000 metres of glass. I heard from several quarters that the King intended to make a large vegetable garden for producing early vegetables with the intention of sending them to the London and Paris markets, in order to convince the farmers that it would answer their purpose to do the same. Everyone spoke of the King as one of the most enterprising spirits in Belgium, trying to impress commercial notions upon his subjects.

Vegetables, I observed, were quite as forward in Belgium, under glass and in the open, as they were in the Paris gardens. In the Botanical Gardens at Brussels, in the centre of the town, anyone can walk round the beds and see all sorts of vegetables grown in the greatest perfection. For instance, last year I counted eight varieties of Lettuce, so that anyone wishing to see which variety is the finest could go and copy the name on the spot, take it to a seed shop, and obtain the variety. This equally applied to Cabbages, Buckwheat, and Cereals. If such matters were pressed upon our authorities at Kew, who boast of the information given to the masses that visit the gardens upon Bank holidays, &c., what would be their reply? or if they were asked to allot a small portion of that costly establishment for the information and education of growers of vegetables and the general public, what would they say? Large spaces are, however, allotted to specimens of wild and commercially valueless plants, simply for the benefit of the few, not for that of the masses; and yet wholesome and well-grown vegetables form one of the principal items of expenditure in every household in the United Kingdom. It would, indeed, be a boon to many who visit Kew if there were some space allotted to the cultivation of the best varieties of vegetables, fruit trees, and ornamental garden annuals, all distinctly named, so that the people might be able to see for themselves the names of those they would like to cultivate. Horticulture in a form to instruct and help the masses can scarcely be said to be a feature of our national garden, and the authorities there might well learn a lesson from the King of the Belgians. If the Royal Garden at Kew be not a proper place to exhibit the advances made in the vegetable kingdom, perhaps some of your readers will point out a better site. Vegetables would not require so much time and trouble as is expended on Roses and Geraniums, and yet they would teach much more valuable lessons to the occasional visitors.

Malvern House, Sydenham.

T. CHRISTY, F.L.S.

Clanthus puniceus, or Glory Pea of New Zealand, is, I fear, killed, as ere this time last year it was in full flower and very handsome.—W. ROBERTS, *Penzance*.

THE GARDEN FLORA.

PLATE CCLXXXIV.—MICHAELMAS DAISIES.

SELECTING the best from the long list of perennial Asters, or Michaelmas Daisies, as they are called, is no easy task for those unacquainted with them. As a rule, they are a somewhat despised class of plants, simply because the commonest possess a somewhat dingy appearance; such, for example, as the old *A. dumosus*, may be seen in almost every cottage garden, and one or two others which have small flowers of no decided colour. There are, however, some really beautiful Michaelmas Daisies, but it is only within the past few years that they have become generally grown. Three distinct types of Aster may be readily distinguished by their habit of growth; first, there is the alpine or dwarf-growing kinds, from 6 in. to 3 ft. in height, such as *A. alpinus*; then the tall-growing kinds, varying in height from 3 ft. to 9 ft.; and lastly, those with spreading slender stems, such as *A. turbinellus*, *patens*, &c. A representative selection should include some of each of these sections; therefore, of the dwarf kinds, we would recommend *A. alpinus*, a handsome sort, about 9 in. high, which produces large purple-blue flowers during summer, and which is excellent for rockwork. *A. Amellus* is also one of the most beautiful of hardy perennials; it grows about 2 ft. high, and produces a profusion of bright purple blossoms. There is also a large flowered variety of it named *bessarabicus*, which is even much finer than the type, but a little taller in growth. *A. longifolius* var. *formosus*, called also *minor* and *minimus*, is an extremely fine plant, remarkable for the profusion with which its heads of deep rosy-pink flowers are produced on stems about 2 ft. high. The Pyrenean Starwort (*A. pyrenæus*), though not so showy as the last, is a desirable early autumn-flowering plant; it grows about 2 ft. high, and bears large heads of lilac-blue flowers. *A. Reevesii* is a pretty little variety, with slender stems laden in early autumn with tiny white flowers. *A. cordifolius*, *A. Lindleyanus*, and the *Galatella* section (*A. dracunculoides* and *linifolius*) may be added to the dwarf growing kinds; also *A. sericeus*, a remarkably distinct and pretty kind, and *A. versicolor*, a dwarf sort, with flowers 1 in. across, changing as they grow older from white to mauve.

The kinds with a spreading habit of growth are extremely graceful, and ought to be in every garden, as the slender sprays are specially useful for cutting purposes, in which state they last a long time in perfection. There are not many, the best being *A. turbinellus*, a sort with large mauve flowers; *A. patens*, with a similar spreading growth, but with smaller flowers; and *A. laxus*, a fine species, with pale purplish flowers produced freely early in autumn. The tallest growing kinds are very numerous, and most of them possess a striking similarity in habit of growth and flowers. The most distinct are the largest kinds—*A. Novæ Angliæ* and its varieties *roseus*, *pulchellus*, and *A. Novi Belgii*, all of which are well worthy of culture, as they produce a fine effect planted in back rows of borders; *A. Chapmani*, *A. Drummondii*, *A. puniceus*, and *A. Shortii*, all about 5 ft. high, should also be included in a selection as well as those which bear doubtfully authoritative names, such as *A. purpuratus*, *A. amethystinus*, *A. elegantissimus*, and *A. multiflorus*, which may be found in trade lists, not omitting also the elegant little *A. ericoides*.

Where a larger collection is desired, the following should be added, viz.: *A. Tradescanti*, *sikkimensis*, *trinervis*, *cabulicus*, *fragilis*, *formosissimus*, *prenanthoides*, and *diffusus*.

Culture and Position.—As regards their culture, it is simple enough; they like a good soil, but do not refuse to grow in any kind. The question to be considered is rather how the



A GROUP OF STARWORTS (ASTER.)

plants should be placed. The dwarf kinds are excellent for the rougher parts of the rock garden or the front rows of a mixed border, and the taller and more vigorous sorts do well for naturalising, and all are valuable for cutting purposes.

The kinds represented in our plate are *A. longifolius* formosus, the small rosy flower on the right; *A. Amellus* bessarabicus below it; *A. lævis*, the purple flower on the left; *A. Novæ Angliæ* roseus below it; while the small one in the centre, with rosy-purple and white blossoms, is the pretty *A. versicolor*, which changes colour according to its age.—W. G.

NEW ZEPHYR FLOWER (ZEPHYRANTHES TREATLÆ)

THIS is a handsome addition to our lists of hardy bulbous plants,



New Zephyr Flower (*Zephyranthes Treatlæ*).

though botanically it is very nearly related to the Atamasco Lily (*Z. Atamasco*). It, however, differs from that species in the

foliage, which in the Atamasco Lily is thick and very narrow, with rounded edges and not shining, while in *Z. Treatlæ* it is channelled with acute margins, and is bright green and shining. The flower of *Z. Treatlæ* is handsome, being pure white, becoming pinkish with age, and the segments are longer and recurve more than in the Atamasco Lily. It is a native of wet or moist places in Florida, where it was discovered by Mrs. Treat, in compliment to whom it is named; it flowers there in April and May. *Z. Atamasco* grows in drier localities, flowers several weeks earlier, and extends more northwards; hence it has a hardier constitution than *Z. Treatlæ*. Our drawing was prepared from a plant which lately flowered in the Royal Gardens, Kew, where it is grown very successfully in pots, but it may be grown equally well in well-drained borders of light soil in the open, provided the situation is warm and sheltered and the plants are afforded a slight protection during severe cold, treatment which would apply equally to *Z. carinata* and *tubispatha*, both very beautiful species, but far too rare in cultivation. W. G.

THE FRUIT GARDEN.

FRUIT CULTURE FOR PROFIT.

Heading Down Old Trees.

In the case of all trees, whether grown under restriction or free from restraint, there comes a time when growth nearly ceases, or at least the growth made lacks vigour, and the power and stamina of the tree seem to have deserted it, the bark loses its natural healthy colour, and the whole tree has a decrepit, hide-bound appearance. Though it still continues to make foliage the leaves lack substance, and look puny and sickly. When this stage is reached the common practice is to dig it up and plant a young tree in its place. From want of a little discrimination many a tree with a good deal of useful work in it has been thus condemned. Of course no one can bring the dead to life, but if the symptoms are simply those of exhaustion, and there is no canker or decay visible, cutting the head off will very likely restore it to health; at any rate, I have seen the plan succeed so often that, even in doubtful cases, it is worth a trial, as, should it fail, there is only one season lost. Let us suppose there is an Apricot, or Peach, or Plum growing against a wall; for several years it has borne but little fruit, and that little has been small and inferior; it still produces blossoms, but they fail to set, or if they set, they drop in the stoning. The best thing to do is to head it well down, for the old channels up which the sap has flowed have become contracted, and we must get as near the source of supply as possible, therefore do not be afraid of cutting down low. It is a drastic remedy, which will either kill or cure. If the tree has vigour enough left to stand it, a long useful period will be added to its life; but if it succumbs, it will simply be terminating a useless existence; the tree must, however, be very far gone if this kind of treatment does not bring it round. The roots should be examined either the season previous to the operation or the season afterwards, lifted, and brought nearer the surface, and some fresh turfy loam should be put round and amongst their feeding extremities. Crushed bones and soot are excellent stimulants to apply at the same time, as they do not clog up the soil in the same way that farmyard manure does, and they impart a wonderful vigour and substance to the leaves, and a tree with puny foliage cannot bear good fruit. A tree headed down, if its roots have been attended to some six or twelve months previously, will often bear a good crop within two years after heading down; therefore there is very little time lost. It is generally thought that the only time when root-pruning or lifting can be done is in autumn or winter, and although I should not recommend any tree that is bearing a good crop to be interfered with in summer, yet, in the case of the trees under consideration, I should prefer to lift their roots and give them their supply of new food in summer, say about July, doing the work if possible on a cloudy day; or if that cannot be done, I would erect a temporary shade till the roots become active enough to supply the foliage. When the earth is warm, roots brought up from a colder stratum to within 1 ft. or so of the surface laid in good fresh earth strike out at once and have a marvellous effect upon the tree for which they cater. Of course performing such work in July requires more thoughtful attention than where

there is little or no demand made upon the roots. The syringe or engine must be frequently employed to keep up the foliage till the roots become active, and the border should be mulched with half-decayed manure.

Watering and Mulching.

I need scarcely say that there are periods in summer during sudden bursts of bright sunshine when a good supply of water would be exceedingly beneficial to all kinds of fruit trees, especially those trees growing against a wall. In such a position they often fail to obtain their fair share of the passing showers in summer; and even if they do obtain it, the higher temperature they are exposed to renders an extra supply at times necessary. The fruit from well-nourished trees is always finer and better flavoured than from starvelings. It seems to be a necessity in making the most of a garden to crop the wall borders with vegetables. No one doubts that the trees would do better without another crop growing in the soil appropriated to them and consuming their food. But, somehow, nearly everybody practises it; it also necessitates digging and manuring, both of which operations have a prejudicial effect upon the well-being of the trees. Failing to secure the whole extent of the borders for the roots of the trees, most of the best cultivators adopt a sort of compromise—that is, the front half of the border is planted with early vegetables and salads, and the back part, from 4 ft. to 5 ft. in width, is left uncropped for the double purpose of leaving some portion of the roots undisturbed, and giving space to attend to the trees in the regulating of the summer growths and other matters that require frequent attention. It is not good policy to dig the borders immediately over the roots of fruit trees in winter; better leave it till March, and then dig the front portion and lightly fork up the back. This stirring the surface at that season lets the sun and air into the border to sweeten and warm it and increase the activity of the roots. As the season advances, and if dry weather sets in about June, a mulch of half rotten manure over the roots of the trees will keep out the drought and nourish them, and the waterings that will be given when necessary will not evaporate so rapidly. In addition to fairly copious supplies of water to the roots, the garden engine should be used to wash the foliage in the evenings as often as possible. Water if it could be given often enough, applying it through the engine with some little force, would cleanse the trees from insects and add immensely to their vigour. Unfortunately, this work is woefully neglected; either from lack of time or indifference, the garden engine is not half enough used. It is more necessary in the case of Peaches and Apricots than other trees, but all wall trees would be immensely benefited by it. Trees growing under the shelter of copings do not get so much assistance from passing showers as if they stood fully exposed; therefore it is incumbent upon all cultivators to make good the deficiency, and to do so with a liberal hand; this is, in fact, one of the matters that cannot be overdone. When the month of March comes round again the decayed mulch should be spread over that part of the border that is cropped with vegetables and be dug in. Dressings in soot and lime or chalk may be applied to the borders of fruit trees just previous to surface-stirring any time. They are very useful stimulants and do not clog up the soil.

Insects and Diseases.

In some soils stone fruits are very subject to the attacks of aphides of various species and colours, but, if I recollect rightly, I have elsewhere alluded to the desirability of keeping up the tree's stamina, as the best antidote to insect attacks, as if it does not act as a preventive, the attacks will be lighter, and consequently easier to deal with. There is something in the juices of a weakly, debilitated tree that the aphides like, for no sooner does a tree get into bad health, then they swoop upon it in myriads. But that is a law of Nature, and is not confined to vegetable life only; the weak are ever preyed upon by their enemies. But there are causes at work in spring when the growth is tender that makes it necessary to keep a watchful eye for aphides even when the trees are vigorous. A few days of cold, biting east wind in April or May checks and stagnates growth, and whenever a check is felt, insects will soon appear. I have often wondered where they come from in such vast numbers. The trees may be clean and free from their presence, but, get the wind in the least to chill and cast a blight on everything, and the insects, as if they had been lying in wait for a favourable oppor-

tunity to attack, appear in myriads. No doubt their eggs had been snugly hid away in the holes of the wall, in cracks and crevices of the bark of the tree, in the folds of the shreds, and wherever a warm hiding-place could be found. To deal successfully with insects, we want to ascertain something of their habits and mode of living. When we know that they are hid up in winter in a particular spot, and that they cannot help themselves, we have them somewhat at advantage if we attack them then. Thus, wherever the trees are much infested with insects, either aphides or red spider, we may lighten our spring and summer labours somewhat by washing the wall with a strong solution of soft soap or Gishurst Compound, by unnauling the trees and renewing the shreds. All the old ones that are in good condition may be used again after they have been scalded with boiling water. The trees should be washed with Gishurst Compound, from 6 oz. to 8 oz. to the gallon, well incorporated with the water. A brush should be used for the strong branches on which are no buds, brushing the solution well into the cracks and crevices. This thorough cleansing when growth is dormant, with the use of clean training materials, whether the branches are nailed or trained to wires, enables us to commence the season hopefully, and generally delays the attack till the blossoms are set, but not always; sometimes in the case of Peaches a few flies appear on the young shoots before the debris of the flowers fall; when this happens, a little Tobacco powder puffed among them will keep them in check; in fact, Tobacco powder is the only thing I have used for many years for early application, till the weather becomes warm enough to employ the engine, then a good supply of soft soap and water, used on the principle of prevention rather than cure, is all that is necessary. The old adage may be extended, for in our attacks upon insects "a stitch in time saves many more than nine."

The Black Aphis is the most difficult to kill, but I have never known Tobacco powder to fail in its eradication; but it is powerful, and the young shoots should not be dusted too heavily with it, or it may injure them. It is best used in the morning, just before the dew has all evaporated from the foliage. In addition to the Peach, the black aphis attacks the young growth of Cherries; fastens upon the young soft leaves at the ends of the young wood. This fact often assists us in destroying them, for the young shoots may be bent down and dipped into a basin or bowl containing a strong solution of Quassia chips, 3 oz. to the gallon, or soft soap and Tobacco liquor, 4 oz. of the former to 1 quart of the latter to the gallon of water; but, as the strength of the materials sometimes varies, it will be better to try anything that is being used for the first time at different strengths, until it is found suitable for destroying insect life without injury to the vegetable existence; and the syringe or engine should be used frequently, charged with clean water. Next to aphides come the

Red Spider and the Scale, but the latter can be dealt with by winter dressing with Gishurst Compound, and the same, or soft soap in solution with some sulphur added, will tend to prevent the appearance of red spider. The latter insect is such an insidious little fellow; he lies ensconced in the wall, or hid away in the axils of the buds, or in the folds of the shreds till the summer comes, and when, under the pressure of a week's hot weather, the forces of the tree begin to wane, and the opportunity he has been waiting for has arrived, out he comes and takes advantage of it to the full, and unless his work is discovered, and remedial measures taken immediately, many of the leaves may be honeycombed and destroyed in a week, and no tree can go through such an ordeal without its general health suffering. Had the trees been kept moist at the root, and had they been washed occasionally in the evening with clean water, there would probably have been no attack, for red spider, like all other spiders, dislike cleanliness, and water is an abomination to them. In writing this chapter upon insects I do not intend to speak of every insect that may occasionally visit our fruit trees; I am only taking the case of those that are most destructive, and if the measures we adopt are sufficient to keep off the greater evils the lesser will not do harm. There are maggots and grubs, the larvæ of various moths, that will coil themselves up in the foliage, but these can easily be destroyed without much damage being done; it is the insects that breed so rapidly, such as aphides and red spider, that are usually so destructive, and it is against them that special precautionary measures must be taken. Next in importance in the list of enemies to the fruit growers are the curls, blisters,

blights, and mildews, or whatever name the various maladies may be commonly known by. The curl or blister is most probably caused by cold currents, as it is never found on trees under glass, and very rarely found outside in sheltered situations. It is only to trees exposed to cold winds that it really proves injurious. And it is to shelter and better root-action—as the root-action is probably weak and sluggish—that we must look for its removal. It has been thought by some that it is caused by insects or mildew because these are often present on blistered leaves, but they are rather an effect than a cause. The best course to take with trees that are badly blistered is to pick off the worst leaves, and syringe frequently with soft soap and water, to encourage clean, healthy growth, and adopt some effectual system of affording shelter during the prevalence of cold, easterly winds; at the same time lift the roots and bring them near the surface, placing some mellow, turfy loam within their reach to stimulate healthy root-action.

Mildew is often present with blister or curl, and may arise from nearly analogous causes, viz., sudden changes of temperature, producing stagnation to the vital forces of the tree. Sulphur is the acknowledged remedy for mildew in all cases when it attacks vegetable growth, and it may be applied by dusting it on the part affected, or be mixed with water and applied with the syringe or engine, and if one application does not suffice follow up the practice till the mildew is destroyed. Gumming and canker sometimes attacks stone fruits, especially Cherries and Apricots, more rarely Peaches and Plums. Various causes have been assigned for it, but in my opinion it is caused principally by deep rooting or by planting in rich soil, thus gorging the sap vessels and producing an unhealthy, plethoric habit. Very rapid growth in young trees is not an unmixed good, and it is in those cases I have seen the greatest amount of gumming and canker, and when a tree is affected with gumming in its early career, it takes a long time under a careful regimen as to diet before the evil can be cured. When gumming follows some local injury to the bark, although that injury may be the proximate cause, it is not often the real one. If the tree had not been acted upon by predisposing agencies, gumming would not often follow a mere bruise or fracture of the bark. Much discussion has at various times taken place in the horticultural press as to the action of

Galvanised wire upon the young wood of Peaches trained on it, and that in some cases injury has resulted from its use there cannot be a doubt. But if we grant this we must still ask the question, How is it that it does not always have the same effect? as galvanised wire has been used in many places with no such bad result. I remember a good many years ago—for this galvanised-wire question is no new one, though it comes up fresh every year or two—I was speaking to a manufacturer about it, and though I do not remember his exact words, the impression left on my mind is that there are various qualities of galvanised wire, and whilst some may be perfectly harmless others may be injurious. Even supposing this statement to be correct, it is only a negative kind of comfort unless we possessed some infallible means of telling the harmless from the injurious; but I should think it would pay some firm of manufacturers to make a genuine article that could be guaranteed to be harmless to growth, as this fear of its injurious effects prevents many from using it. There may, of course, as I have already hinted, be trees predisposed to gum. Some may be constitutionally liable in the same way that families in the human species may be subject to gout or other complaints. In discussing the ailments of fruit trees, perhaps the most difficult thing to do will be to assign a convincing cause for the

Sudden death of large branches of Apricots. Old and young, all are liable to this disease. A tree may be apparently healthy and all at once, without any cause so far as we can see, a large limb, perhaps all one side the tree, may die and have to be cut away, but the most marvellous thing about it is no sooner is the mischief done than the trees set about repairing the damage, and in most cases the space will soon be filled up again with new healthy growth. The only way I can account for it is the tree receives some severe shock. It may be drought, or something equivalent to a sunstroke in the human family; it may arise from carrying too heavy a load, overtaxing its power, or anything else that puts a severe strain upon the forces of the tree's life, so as to cause a weakening or a paralysis of its powers. I never remember to have seen this take place with trees cultivated under glass, and if it did I should expect it to arise from the same causes. Apricots

are generally very thrifty when planted out in a cool house with just the smallest possible amount of artificial heat to make the blossoms safe on cold frosty nights in spring, and abundant supplies of fresh air at all favourable seasons. The only suggestion I can offer likely to have any preventive influence in the case of branch dying is to plant in sound healthy loam without manure. Don't crop the borders, and be content when the trees are young with a moderate annual growth. Very rapid growth in youth generally involves some sacrifice in after years. The presence of lime in some form is necessary to the health of stone fruits. It moderates, hardens, and strengthens their growth, and dressings of lime or chalk should be given when necessary, scattering it over the surface of the border in spring and lightly forking it in.

E. HOBDAV.

FRUIT GROWING MADE EASY.

SOIL is an important element in the matter of successful fruit growing, therefore the kinds of fruit sought to be produced should be subordinated to the ground that happens to be at the disposal of the intending grower. Having regard to the permanency connected with an orchard or plantation, and in order to ensure the free and kindly growth of the trees, the ground should be trenched at least two spits deep, an operation which should, where practicable, be completed in time to get the trees planted during November, which may be taken as the best month in the year for the purpose. Trenching is, of course, an expensive matter, but as its very beneficial effects will be felt by the trees for years to come it should be considered almost, if not quite, a *sine qua non*. The roots make headway much more freely in ground thus moved, besides which the surface water is thus enabled to drain away.

In trenching ground where the second spit is found to be of a gravelly character, it is best to keep this at the bottom of the trench; on the other hand, if there be a good depth of mould, I should bring it to the top, and if the trenching is being performed on some grassy ley, the turves should be turned bottom upwards and well buried. As wireworms will very probably be met with herein, a few cwt. of salt, or salt and lime, per acre may be sown broadcast before trenching, and the sooner it is then trenched in the better. Besides being unpalatable to these little pests, upon many soils a salutary effect will thus be produced, and here I may mention incidentally that in my opinion salt is an ingredient that deserves to be far more generally used upon land than it is at present. Premising that a good stiff, loamy soil is what is to be planted, I should have little hesitation in deciding upon Apples or Black Currants. I have seen the Blenheim Orange and the Golden Knob Apple doing well upon this soil; the former cannot be in a wrong place, while the latter is an excellent dessert Apple. Many other sorts no doubt grow equally as well as those just named, but amongst the almost endless variety of this most useful fruit, it is not my intention now to consider the rival claims of any.

I have mentioned Black Currants as adapted to a stiff, cool-bottomed soil, and there is little doubt that that is the very best for them; but Cherries, Plums, and Nuts will also grow on that, and likewise a stony one. Close observation of fruit trees in their wild state will afford a point to the enquirer; as, for instance, where the common Sloe and Crab does well, there the Damson or the Apple may be expected to thrive; so also, where the Gaskin grows luxuriantly, it is a safe inference to draw that a Cherry tree will grow equally well; still, in deciding upon a site for an orchard, the aspect as treated of in my last article (p. 404) must be of vital consideration.

AGRICOLA.

TAR DRESSINGS FOR VINES.

I AGREE with "Peregrine" that tar ought not to be used; no, not in the smallest quantity. I have not read the article which "Peregrine" criticised, and know nothing of the authority which "O. P." (p. 444) seems so anxious to uphold. But had he all the horticultural skill in the country concentrated in his own person I should not follow him in tarring Vines, or aught else. And for the simplest of all reasons: it is not needful, and it is dangerous. There are no lack of killing smears for Vines without tar. With cleanliness and soap and water, smears are seldom needed. They are also going out of fashion, and this is hardly the time to increase their number, augment their potency, or add a new element of danger to their component parts. And then there is tar and tar, coal and wood, or in other words

Stockholm and gas tar. "O. P." does not say which is used. There is a very wide difference between them, and while I would strongly condemn all or any tar in smears for living plants, no doubt coal tar is by far the most dangerous. "O. P." writes of tar in certain proportions, as if it were as easily mixed with water, clay, and lime as water is with milk. Did he ever try it? He would find the mixing of oil and water child's play to the regular distribution of tar in equal proportions throughout a smear. I have seen not a few trees killed outright with a very little tar, and therefore express in the strongest terms my approval of "Peregrine's" advice to let it alone. Not a few of our smears smell vile enough already; they will become simply intolerable if horticulturists get in the habit of adding tar to the number of odours, rich and strong, with which so many seem to have a pride in polluting and poisoning the atmosphere of their hothouses. A flock of sheep immediately after its annual dressing will be like a bank of Violets contrasted with Vines dressed with tar suspended in the eye of the sun. No, no tar, and I had almost added no more nauseous smears of any kind. Better far wash dirt and insects off than smear them in. Though the latter may kill many pests, smears leave a residuum of dirt and insect germs to form congenial seed-beds for future crops. Many of them are also as offensive to the eye as they are unwelcome to the olfactory organs.

D. T. FISH.

KENTISH FRUIT GARDENS.

IN these the crop of bush fruits is abundant, and up to the present but little damaged by frosts, drooping-habited kinds escaping better than the erect-growing ones. Currants are generally satisfactory; but some of the strongest canes of Raspberries have suffered from frost, especially that very strong-growing kind the Prince of Wales. Cherries, Plums, and Pears are now covered with blossoms. Even in the case of old, unused quarries, where the thinnest layer of soil has been left, Plums or Damsons have been planted and fine crops secured very often in seasons when finer trees in the rich alluvial soil lower down the hills are all cut off by frost. I find that many large Hop fields have been planted with fruit trees during the past winter; standards or bush trees of Apples or Plums have been substituted for every third row of Hops, and a row of Cob-nuts or Filberts has been placed between the intervening two rows of Hops that are to be left for a few years until the fruit is capable of profitably occupying the ground. The Hops a row being grubbed in the rows in which the trees have been planted, and the rows that are left are being prepared for the growing season by fixing the poles in position, and getting the intervening soil cultivated and cleaned. The poles afford considerable shelter for the young trees, even before the Hops run on them, and young fruit trees make rapid progress under such conditions. They are usually planted in the soil merely broken up deeply by digging large holes, but no fresh manure is applied at the time of planting. A top-dressing or mulching is, however, applied at this season, and that gradually works down to the roots, while at the same time it keeps drought from affecting them. Many apply all the manure which the trees or bushes ever receive as a top-dressing as soon as a good crop is set, and that is done only in the case of trees that have a full crop, for it is worse than waste to apply manure to trees that do not require it. The hedgerows in which Damsons have been planted are now quite white with blossom; that of Apples in the form of standards on Grass is just opening, and under the shelter of the spreading boughs an early crop of Grass is secured, and here at present may be seen sheep and lambs quite at home in such congenial quarters. The pasture in such orchards is of more value than that in open meadows, and it is by no means rare for the crop of some orchards close by here to be sold for £20 per acre. Hereabouts orchards on the old-fashioned system are rapidly supplanting all other crops.

JAMES GROOM.

Linton.

Two Strawberry Plants in a Pot.—The system advocated by Mr. Muir (p. 451) of potting two Strawberry plants in one 6-in. or 8-in. pot is undoubtedly an economical plan, and one which would dispense with a considerable amount of labour where several thousand plants are annually grown for forcing, but the question arises, Would the fruit be of equal size and quality and compare favourably with fruit grown on the old system of one plant to a pot? Several years ago I saw this system tried, and the result was anything but satisfactory, inasmuch as the two plants were very often in different stages of growth. When introduced into heat they did not start equally, and one plant flowered and set its fruit a week or ten days before the other; therefore when this occurs it becomes difficult to select a well-set batch to push forward for the production of early, ripe fruit. In removing the plants from the house or pit used until the fruits are set, a number of plants are generally selected at the same stage of growth, say immediately after the fruits are well set, so that batch after batch may be cleared out in rotation, according to their order of ripening. Under the system of placing two plants in one pot this could not be easily accomplished, as when the ripening period arrives one plant would often be considerably in advance of the other; therefore it would be difficult to treat successfully in the same pot one plant with ripe fruit and one with fruit not finished swelling so as to obtain the best possible results.—R.

Cultivating Young Orchards.—It is only in the richest land that young orchards can flourish without good cultivation, and as there are but few orchard soils that possess more than ordinary fertility, the owners should be prepared for the early mellowing of the surface of the ground occupied by their young fruit trees, remembering that it requires only a very few years for the entire soil to become filled with the network of their fibres, and anything

short of broadcast culture will not answer. A shallow ploughing in spring may be sufficient, and cultivators and harrows do all the work for the rest of the season. If the ground is only moderately rich, no other crop but the trees should occupy the ground, but if sufficiently manured, hoed crops may be planted. The safe index for the kind of treatment is to examine the annual shoots of the trees, and if found less than 1 ft. long it will be seen that they want better treatment; if 2 ft. or 3 ft., you may plant Potatoes, Turnips, Beans, or Corn among them. For many soils and for most trees, shallow culture answers best; and if the soil is already in a tolerably mellow condition, a plough will not be required, but an excellent substitute be found in the Acme harrow, which will thoroughly and rapidly pulverise the surface, while it cannot tear up the roots. Later in the season, the smoothing harrow will take its place, which, like the Acme and other harrows, passes over the roots without tearing them.

—Country Gentleman.

Diseased Peaches.—I send for inspection a box of diseased Peaches. I understand that the same disease showed itself last year, and I cannot discover the cause of it. I do not think there is anything wrong so far as management is concerned. They have been regularly watered and otherwise well looked after. —J. V. [We have often seen Peaches in the condition of those sent, but cannot say what ails them. Their cracking, rotting, and dropping has nothing to do with any fungus.]

SEASONABLE WORK.

Pines.—The bottom-heat in the fruiting-pit should range from 80° to 85°, and the temperature of the house from 70° at night to 85° by day. Maintain a moist, growing atmosphere by syringing over the surface of the beds and damping the floors, and run up to 90° after closing for the day. See that the plants are regularly watered with guano water or liquid in a diluted form, and feed the stem roots by syringing the latter into the axils of the leaves after the house is shut up. If light houses require shading use a light material through the hottest part of the day only, as heavy shading, by shutting out solar heat and light, reduces the necessity for liberal ventilation, and produces elongation of the crowns and suckers, from which the latter never recover.

Successions.—Shift Cayennes, Rothschilds, and Jamaicas intended for winter fruiting into 10-in. and 12-in. pots. Give them a brisk-growing top and bottom heat. Keep them near the glass, and dispense with shading after they have taken to the new soil. Young stocks generally may now have more heat and moisture with a corresponding increase in the supply of air. To have a constant supply of ripe fruit from a limited number of plants, a few of the strongest suckers should be started at short intervals.

Vines.—Early Grapes now ripening will require very little fire-heat to maintain a gradually declining temperature, until the minimum touches 58°, with a circulation of dry warm air. Gradually reduce syringing, but do not discontinue the damping of paths, floors, and walls, and adopt every means for keeping the foliage clean and healthy until the Grapes are cut, otherwise the loss of the principal leaves at this early season will injure the Vines and affect the next crop of fruit. Late kinds, including Alicante, Lady Downes, and Black Morocco, should be treated as Muscats during the time they are in flower. Keep the atmosphere softened with moisture on fine days, and allow the temperature to range from 68° at night to 80° or 85° by day. Thin Hamburgs as soon as they are set to allow Muscats to stand over for a few days until the profusely fertilised berries begin to swell. Pot Vines intended for next year's forcing will now require the final shift. Use clean 12-in. pots and good turfy loam and crushed bones in a dry warm state, pot firmly, and return to bottom heat. Water separately and shade slightly for a few days. When fresh root action has set in, secure firm short-jointed wood by full exposure to sun and light, liberal ventilation by day, and early closing with strong solar heat.

Melons.—As good Melons cannot be expected where the foliage ripens before the fruit, see that the roots are well fed, and the house carefully syringed every afternoon until the most forward show signs of changing for ripening. Plants growing in pots may receive more water as soon as the Melons begin to swell, but if planted on hills, watering should be deferred until they have attained the size of large Walnuts. Carefully preserve all the old leaves, thin out all spray, and support the fruit on small pieces of board before the weight becomes a strain upon the vines.

Melons in pits and frames cannot have too much sun and light. Ventilate with caution, and close about three o'clock with moisture when the fruit begins to swell. Attend to linings and covering, as nights will be cold until after mid-summer. Earth up successions with strong loam, and prepare fresh beds for successions by the time frames now full of Potatoes or bedding plants can be dispensed with.

Strawberries.—If good pits are available, get all the best kinds arranged near the glass, with plenty of room between the pots. Ventilate freely, and shut up with strong sun-heat and moisture when the fruit is set. Where extra large fruit of exhibition kinds is desired, thin off all side and inferior blossoms before they open, support with sticks, and give diluted liquid at every watering. Early forced plants that have been hardened off and rooted, may be planted out for autumn fruiting. Soak the balls, ram the soil very hard, mulch with rotten manure, and water with the hose in dry weather.

W. COLEMAN.

The Plague of Rabbits.—We have lately passed through one of the most liberally planted gardens in England, and were once more surprised at the patience which endures that so much money should be spent on trees, and shrubs, and plants to be so quickly destroyed by these creatures—Conifers, Pinks, Carnations, Aucubas, Chestnuts, and scores of beautiful plants in every direction, mutilated, nibbled, and killed! Some precaution ought to be taken in all our large gardens against this needless destruction. In these places there is space enough for these pests to pursue their destructive ways upon the farm or the woods without letting them run riot on the choicer contents of the garden. Some of the Conifers we saw in this case were very expensive and choice. The gardener should

be protected from his enemies. There can be no good reason for cultivating nine-pennyworth of rabbit in lieu of ten shillings' worth of damage. Not only trees and shrubs are destroyed, but many flowers are eaten up—in fact, few flowers can be found which are not liable to destruction by rabbits. We have seen so much damage done, even in the face of some care in precautions, that we appeal to our readers to free the garden, pleasure ground, and choice plantations from the plague of rabbits. Many places are almost alive with them. The gardener has a good deal to fight against to bad seasons, with diminished help in many cases; and it is cruel in him that what he produces, and what he has the care of, should be destroyed or hopelessly disfigured.

TREES, SHRUBS, AND WOODLANDS.

THE GENISTAS.

THESE form a class of pretty free-flowering shrubs, many of which are of a creeping or trailing habit, and therefore suitable for



Genista tinctoria.

planting on the exposed parts of rockwork, where they flower during the greater part of the summer; and, although deciduous, some of the species are, owing to the bright green colour of their stems, almost as effective as an evergreen, while the stronger-growing kinds keep our shrubberies gay with their yellow, Pea-shaped flowers. A few of the most distinct are:—

G. ætnensis.—A native of Mount Etna. It grows from 12 ft. to 15 ft. in height, and is one of the most effective of the larger kinds, bearing very fine flowers of a bright yellow colour. This was last season very showy near King William's Temple at Kew.

G. elata.—A strong-growing and showy kind, attaining a height of from 12 ft. to 15 ft., and flowering towards the end of the summer. Of this there are several large clumps around the Pagoda at Kew.

G. ephedroides.—The flowers of this, although small, are produced for a long time, and the general aspect of the plant is like that of *Ephedra distachya*; hence its name.

G. hispanica.—A distinct kind, resembling a dwarf, procumbent variety of the common Furze. Indeed, it is found under the name of *Ulex hispanica* in some nurseries.

G. lusitanica.—A spiny shrub, some 4 ft. or 5 ft. high, flowering early in the season, and remarkable among the Leguminosæ from having opposite branches.

G. monosperma.—Very common along the Mediterranean coast, where it is of great service in binding the loose, shifting sand; with us it forms an upright-growing, white-flowered shrub, 4 ft. or 5 ft. high.

G. prostrata.—A pretty, creeping kind, which flowers during May and June, and is more thickly covered with foliage than many of the species.

G. sagittalis. one of the dwarfest; in this the leaves are sparsely produced, but the stems, being peculiarly winged and jointed and bright green in colour, are as effective as if clothed with foliage. It is a pretty and distinct species, very suitable for rock-work.

G. tinctoria.—A common English plant, which, according to the locality in which it is found is either creeping or a showy little under-shrub. Of this there is a double-flowered variety, which is very ornamental, the flowers being more persistent than those of the type.

G. triquetra.—The stems of this are curiously three-sided and of a bright colour. It is a native of the south of Europe, trailing in habit, and one of the prettiest of the whole race. It flowers during the early summer months.

All the above bear yellow flowers except *G. monosperma*, in which they are white.

H. P.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS

A Valuable Evergreen Tree.—We have been for a number of years now making a serious mistake in our gardens by planting a number of really tender evergreens which escape in mild winters, suffer in ordinary ones in many districts, and perish in severe ones. The matter is well illustrated now in our gardens. Even in some of the warmer southern counties gardens and plantations are terribly disfigured, owing to the evergreens having suffered so much during the past few winters. All the more remarkable is it that at such a time the curious and handsome Japanese tree *Thujaopsis dolabrata* should have escaped as if wholly regardless of cold. In looking round the gardens at Battle Abbey the other day, deploring there, as elsewhere, the effects of the winter, we were surprised to meet with a very fine specimen of this tree in the most perfect health and the freshest beauty. It is to be then one of the evergreens of the future. It is probable that the effects of the past few winters will lead to a consideration of our planting lists; at any rate they should do so. People should not always plant costly subjects not certain to remain in health a dozen years. We do not oppose the planting of evergreens, though believing too many are planted to the neglect of the hardier and, in some respects, handsomer deciduous trees. But wise planters should consider well the evergreen they plant, and recognise the fact that there is not one out of a dozen evergreen trees offered by the nurseryman really hardy. We should have selections of evergreens that will resist British winters. The Scotch Fir, the Yew, the Hemlock Spruce, the Virginian Cedar, and the western *Arbor-vitæ* are types of the hardy character we want, and among such a hardy selection we should place the curiously distinct and beautiful Japanese tree above named.

Yews and Chestnuts.—The approach to the Wimborne Minster Cemetery, Dorset, consists of a fine avenue of Horse Chestnuts, planted about fifteen years ago. They were considered rather wide apart, and about eight years ago between each tree a Yew tree was put in. This seems to have produced most unfortunate results, for the Horse Chestnuts are rapidly dying. The effect, whatever it may be, is at present attributed by the Board to some poisonous property proceeding from the roots of the Yew trees. We should, however, be very thankful if some one experienced in this subject would throw additional light on the case, and which of the two it would be best to sacrifice. I may observe that the soil is a fine, deep loam, and is much valued for gardens or potting.—W. T.

Hedges around here are looking grand, being finely in flower; and the Blackthorn contrasts nicely with the light green leaves of the trees. I almost doubt that, even in autumn, when the tints are so numerous and beautiful, whether the colours of the trees in returning to life, as it were, are more handsomely contrasted than they are in spring. The Sycamore (*Acer pseudo-platanus*) presents several tints in spring, as well as in autumn. Hedges are also in a glow with the Pilewort (*Ranunculus Ficaria*), Primroses, Violets, and the pretty little Strawberry-leaved *Potentilla* (*P. fragarioides*).—W. ROBERTS, *Penzance*.

Araucaria imbricata.—This is one of our best evergreen trees for decorating parks and lawns. With a little shelter from cold, biting winds, it succeeds well if planted in free, rich loam. It is admirable for planting where cattle are grazing, as they cannot injure it in any way. The age of an *Araucaria* may be roughly ascertained by counting the tiers of branches and adding one-half to the number. Two fine specimens may be seen growing side by side in the flower garden at Dirleton. These trees are finely furnished to the ground, and form a remarkable feature among the many beautiful objects with which they are associated.—W. L.

Catalpa speciosa Hardier than *C. bignonioides*.—We find that our specimens of *Catalpa speciosa*, or the Hardy *Catalpa*, as it is commonly called, have not been injured in the least by the past terrible winter, while the species *Catalpa bignonioides* has been injured. The *speciosa* trees are but two years from nursery plants a foot high. They grow with great rapidity and attain the size of from 12 ft. to 20 ft., giving a dense shade and presenting a handsome appearance. The wood of this variety is now well known to be of great durability, and, all things considered, we commend its use to our friends in general and to our western friends in particular. Little trees may be purchased of leading nurserymen at a very low price.—*Rural New Yorker*. [Can any of our readers say how this new *Catalpa* grows in England as compared with the old and well-tried kind ?]

The Aspen.—All Poplars are interesting when the leafless branches are covered with male catkins; but if one kind may be considered more beautiful than another, I would say it is the Aspen (*P. tremula*), the catkins of which, being from 4 in. to 6 in. long, hang down gracefully and give the tree a very elegant appearance.—ALPHA.

“WITH regard to trees, I passed part of my youth in the shade of Burnham Beeches, and have now the happiness of living amid my own ‘green retreats.’ I am not surprised that the ancients worshipped trees; Lakes and mountains, however glorious for a time, in time weary; sylvan scenery never palls.—BEACONSFIELD.”

ORCHIDS.

SHADING ORCHIDS.

CONVICTIONS founded on practice, and still further supported by what is to be seen in half the plant-houses throughout the kingdom, have long led me to the conclusion that half the evils which affect plants cultivated under glass are directly traceable to want of sufficient light, either through the plants being kept continually too far from the roof of the house they occupy, or through the houses not being constructed so as to admit sufficient light, or through their being unfavourably situated, so that the light is intercepted by other objects in the immediate vicinity of where they stand. The conviction is often forced upon me that the cultivators of most plants grown for the various purposes of decoration have not realised this all important matter of light so fully as fruit growers have. But in coming to this conclusion, the difference between use and ornament needs to be taken into account; fruit is grown to be eaten, and decorative plants are grown to be looked at, consequently the latter are often kept in positions in the houses in which they are cultivated very much less conducive to their well-being than the fruit-yielding plants, and to some extent they even must be, for except in the case of climbers trained near the roof, no one could tolerate a collection of plants grown in pots kept elevated close up to the roof, even though they would gain much in health by being so placed. Thus it follows that so far as possible to make up for the disadvantages of not being able to keep them in the most favourable position, it is not alone necessary that the house should be so constructed and situated as to give abundance of light, but that in the work of shading no more light should be shut out than cannot be avoided. This holds good with by far the greater number of plants cultivated under glass that require shading from the sun, but with none more so than Orchids.

The time of year has now come when the sun has much power, and the young tender growth of many Orchidaceous plants will bear less of its rays coming directly on them than they are able to stand after the leaves are more solidified. This is so well understood by those who have had anything to do with the cultivation of Orchids, that it is a comparatively rare occurrence to see much injury done to these plants through the sun's action; but, as much cannot be said for the opposite course of over-shading, and in the anxiety to preserve them from harm and to secure large leaves of a deep luxuriant green colour, the shading is too often very much overdone, not unfrequently through the material used being too thick, but still oftener through its being immovable, thus shutting out the light so much

needed by the plants on the many sunless days which we have and during the mornings and evenings.

This is by no means the first time I have pointed out the evils of over-shading Orchids, and the more I see of the cultivation of these plants the more I feel confident of the injury it does them. Wherever I meet with a large or small collection in better and more robust condition than usual, it is generally where less shade is used than many growers would look upon as needful. It has frequently been urged that the use of movable shading in the shape of blinds and rollers was costly as regards the wear of the material employed and the labour of running them up and down; than this, however, a weaker argument could scarcely be advanced in support of a bad course of treatment to plants of such value. If Orchids are worth the money they cost, coupled with the still further cost of providing house-room, fuel, and the labour indispensable to their cultivation, it is the worst possible economy to withhold the appliance and labour requisite to protect them from the sun without inflicting the injury inseparable from shutting out the health-giving light.

T. BAINES.

ORCHIDS AT CLAPTON.

IN the vast establishment of Messrs. Low & Co. Orchids are always of paramount interest, and invariably the visitor may find some new or rare kinds in flower not represented by a single plant, but by hundreds and often thousands. Just now there are large importations of *Aerides* received in fine condition, and among them we noted the new *A. Lecanum*, which promises to be a fine addition to this beautiful genus; *A. crispum* and the fine variety *Lindley-anum*, some of which are in flower, yield a delicious aromatic perfume which is very powerful. *A. maculosum* will probably again become less rare, judging by the quantities just imported, all the plants seeming to have had scarcely any check in growth, and like remarks are applicable to the hitherto rare *Vanda Batemanni*, the pretty white blossomed *V. Denisoni* and the new *V. Boxalli*, said to be a variety of *V. lamellata*, but abundantly distinct from a cultivator's point of view. Some of this importation are flowering, and among them are some with remarkably highly coloured lips, much brighter even than the specimen we saw some time ago grown in Scotland. Probably there has never before in Europe been a finer or more numerous lot of Low's Lady's Slipper (*Cypripedium Lowi*) seen in flower than there is here; the importation occupies half of a spacious house, and almost every plant is bearing one or more spikes, the majority having three blossoms each on a spike. There is a striking diversity of tint among the flowers; some of the finest varieties have the long sepals of a pleasing bright violet-purple and the characteristic spots much heavier than in others. It is a very handsome Orchid, and should be included in every choice collection; being a Bornean plant, it requires a hot and moist atmosphere to develop it properly. The fine new *C. Lawrenceanum* is largely represented, and the handsome flowers are already appearing, which indicates its free-flowering character. This species is particularly remarkable for its finely marbled foliage, which is more conspicuous than any other kind. *C. Argus* is another handsome species which has been imported largely, the flowers of which are very distinct, and some of the forms are far more attractive than others. *C. levigatum*, *C. Stonei*, *C. caudatum* may likewise be seen by the thousand—an evident proof of their popularity.

Dendrobiums.—There are not many of these in flower now, but there are a few specially worthy of notice. These are *D. aureum philippinense*, a very handsome variety, very distinct from the typical *D. aureum*, or *D. heterocarpum* as it is more often called. The flowers are 2½ in. across, the petals broad and white, the lip long, white in the lower half, yellow and marked with fine dark lines in the shell-like cavity. The stems grow 3 ft. or more in length, and when thickly furnished with their attractive flowers they have a fine appearance. There is a very fine importation of this; therefore it will probably become widely distributed. *D. Lowi* is a much finer species than we thought it was when we saw it here in flower some weeks ago. The flowers as they are now are a clear yellow with a narrow lip furnished on its upper surface with conspicuous deep orange-coloured hairs. The flowers are about 1½ in. across, and have a long spur projecting behind. The stems are long and slender, and appear to be very floriferous. An unnamed species in the way of the pretty *D. barbatulum* is highly attractive, and promises to be a very desirable plant. The flowers are pure white, about 1 in. across, the lip and petals broad and of great substance, and produced in dense racemes from the old bulbs similar to the singular *D. secundum*. *D. tortile* and its pretty pink variety *roseum* is in flower, and very attractive it is when a large mass is seen as here. The beautiful *D. Freemani* is still very showily in flower, a condition it has been in for some months.

W. G.

Oattleya Skinneri.—The plant of this shown the other day at Regent's Park was perfection itself as regards flower, having twelve spikes on it fully expanded. It was in an 8-in pot, planted level with the rim, and has been in the same pot about ten years. What I wish to notice is, that here we have a plant which has violated all the conditions usually recommended by Orchid growers, who mostly recommend the pots to be kept free from conferva and Moss; whereas the pot in this case was as green as could be. It has had no fresh compost given it, and it is low in the pot; yet it thrives admirably. Why is this? I have always contended that in the surrounding conditions—atmospheric moisture, heat, light, shade, and sun, &c.—lay the great secret of success. Except these are right no amount of attention will do; the ordinary answer one gets when enquiring about such successes as that in question is, "The plant grew in an ordinary house, and had very little care bestowed on it." But this is not enough; if those who grow any plant or plants extra well would be good enough to let us know all the conditions under which they succeeded, such as elevation, moisture, and general surroundings, they would be doing good service. I do not advocate coddling, yet perhaps producing the conditions under which this plant grew in some localities would be called coddling.—J. CROUCHER.

Dendrobium Falconeri.—We have at present a plant of this Dendrobe with 129 fully expanded flowers on it. It stands about 3 ft. high and is trained in a circular form round stakes. It is said to be a shy grower, but with us it is as free as *D. nobile*. We grow it in a mixture of Sphagnum, charcoal, and a very small quantity of rough peat. It is in a 7-in. pot, and is one mass of lovely flowers. Have any of your readers a larger plant?—W. THOMSON, Jun., *Three Vineyard, Clonelfords*.

FERNS.

OUT-DOOR FERNS.

HAVING briefly referred to the leading points to be observed in the general management of indoor Ferns, I propose to notice the large section of the same family suitable for out-door cultivation, which are fitted to give beauty and grace to many a dingy spot if only judiciously managed. Hardy enough to bear the frost of our most severe winters, and yet so chaste and lovely, they ask only for a quiet corner or sheltered, sunless nook, where in light subdued, and soft with soil for their roots, such as has been before described, they will flourish satisfactorily. Many are the kinds suitable for such a place, and if the situation is more exposed than I have contemplated, there are yet many species capable of enduring even strong wind and a large amount of sunshine. In the arrangement of a Fernery it is advisable to plant the largest growing Ferns first, following them with the next largest down to the smallest. By this plan it is possible to avoid placing the small ones too much under the shade of the larger growers, where they would be deprived of the necessary light. Let each Fern be so arranged that its form may be distinctly seen, and that it may also have room for its healthy development under the influence of its own share of light.

Osmundas.—Beginning with the large growers, let us take the Osmundas, a family of which our British *Osmunda regalis* (the Royal Fern) affords a good example. By some, these are called flowering Ferns, from the resemblance which the fertile fronds bear to spikes of diminutive flowers, for instead of the spores of these Ferns being produced underneath the fronds, they come on the upper portion of some, while in others they are produced on spikes which have no leafy resemblance to the barren fronds, but rise perpendicularly from the centre of the plant, somewhat like ears of Wheat on their stalks. Of this singular feature we have an illustration in the *Osmunda cinnamomea* of North America. This Fern, from its great hardihood, is well fitted for out-door culture, and makes an interesting addition to the hardy Fernery. It should be well sheltered from the sun and wind. It grows from 2 ft. to 3 ft. high, the barren fronds rising from the crown in shuttlecock form, the upper portions spreading gracefully outward. These fronds are divided to the mid-rib or rachis, the divisions or pinnae being like a row of toothed leaflets up each side of the rachis. The frond in its widest part is from 6 in. to 9 in. across, from which part it tapers both upward and downward in a lanceolate fashion. When just emerging from the crown the fronds have a peculiar woolly appearance as if they were covered with white cotton, and in their incipient stages of growth each crown might be mistaken for a small Mushroom. The fertile fronds, which rise from the centre of the crown to a height of 3 ft. (and may be three or four in number), bear the spores in small cases on short branches covering 6 in. to 10 in. of their upper portion, and these assume a light brown colour when the spores have fallen out.

Osmunda Claytoniana, also from North America, is not easy to distinguish from the foregoing Fern until the fronds begin to unfold themselves. They then display a lovely softness of colour which makes this species more charming than *O. cinnamomea*, though the form of the plant is very similar to that of the last mentioned. There is, however, this difference, viz., that instead of the barren and fertile fronds being independent of each other, in this plant the spores are produced on a number of the pinnae on each side of the rachis, between the middle of the frond and a few inches from the apex. On this account this species is also called *O. interrupta*, the line of barren pinnae being interrupted by several fertile pinnae, which are completely hidden from view beneath the cases containing the spores.

Osmunda gracilis is a lovely North American Fern, and answers in all respects to the British *O. regalis*, except that all the portions of the fronds are of a lighter character, the rachis and stipes being thinner, and the pinnules narrower and less solid than in *O. regalis*, characters which give the plant a much more graceful appearance than belongs to the British Royal Fern, or *O. regalis*. *O. gracilis* grows from 2 feet to 3 feet high, and the fronds are lanceolate and bipinnate, i.e., the pinnae which branch from the rachis are again divided into small leaves or pinnules, these latter being from 1 in. to 2 in. long, $\frac{1}{2}$ in. wide, rounded at the base and pointed at the end; colour, a lovely green. The spores are produced at the ends of the fronds, taking the place of the upper pinnae, and clustered all round the ends of the rachis and the little branches attached to the rachis near the ends. All these American Osmundas are desirable, and though perfectly hardy are well worth a place under glass, where they show their richness to perfection.

Osmunda regalis, as before said, differs from *O. gracilis* only in its stronger and more robust and rigid character. In suitable situations it grows to a large size, sometimes approaching 5 ft. in height, and occasionally 8 ft. or 10 ft.. Peat or bog should enter largely into the compost in which the Osmundas are to grow, and they should have also an abundance of water; indeed, *O. regalis* seems to grow best when planted where its roots can reach and be constantly in water; hence they are more suitable for the base of rockwork than for the top, unless provision is made to supply them with water in dry weather. It should be said *O. regalis* will stand a good deal of sun and wind if its roots are wet enough.

Onoclea sensibilis deserves to be mentioned with the Osmundas, because its spores are produced in "cases" on separate stalks, at the tops of which they appear like clusters of dark brown beads. The barren fronds, which are damaged with very little sunshine, rise to a height of 2 ft. and are very attractive in appearance, being of a delicate green colour, and, when young, tinged with ruby at their edges. They are pinnate, and the pinnae are deeply toothed at the edges. Their fronds are triangular, being so far across the base to the leafy portion as from the base to the point, and this is frequently 1 ft. This triangular part of the frond is supported by a stalk 1 ft. in height, growing out of a creeping rhizome. This latter spreads over the ground and soon makes a group of plants. *Onoclea sensibilis* is a very hardy Fern, and makes itself quite at home in a sheltered part of the garden, or in a plantation, growing quite as well as a native Fern. If grown under glass it is exceedingly beautiful. The soil in which it grows should be made light and open with peat, or leaf-mould and sand, and it should never be allowed to get dry at the roots.

W. BIRKENHEAD.

EFFECTS OF THE WINTER AT BROMSGROVE.

The fatal 18th of January settled most of my shrubs, exposed as they are and must be, do what I will, to the fierce blasts of the north-easter. Common Laurels are all dead; Colchic crippled generally; but *L. rotundifolia* almost uninjured. *Cryptomeria elegans* and other choice shrubs *omnes ad unum interfecti sunt* (I hope their manes will forgive me for making them masculine). Hollies are damaged, Bays dead. In fact, the more exposed portions of the shrubberies have been dug over long ago, their contents burnt, and the soil replanted with Austrian Pines and other frost-proof evergreens.

As regards flowers, the Snowdrops were late and unsatisfactory. Strange to say, I can grow neither the Snowdrop nor Violet satisfactorily, although I succeed with many things much more difficult to cultivate. Hepaticas were pretty good; *Iris reticulata* and *Scilla sibirica* came out beautifully, but the winds and frosts of the last week in March ruined the blooms, as did those of early April the blooms of the charming *Primula rosea* and *marginata*. In the spring garden Daisies and Violas are late, but the latter have stood the winter without the slightest protection, and are now bursting into a glorious profusion of bloom. And what a collection I have, and

how grateful I feel to Messrs. Dickson, of Edinburgh, for introducing such hardy and charming flowers! Of pale mauves, or those in which mauve or French grey predominates, what can be more delicate in their soft pearly beauty than *Picturata*, *Modesty*, and *Multiflora*, and last, but not least, the newly introduced *Souvenir*? Again, I have in full bloom the exquisite canary self *Cygnets*, the azure *Stricta azurea*, the large blue *Distinction*, the grand crimson-purple *Acme*; while the large white *Pilgrimage*, the bluish-purple *Alpha*, and the indigo *Holyrood* are fast expanding. The show Pansies, too, are glorious. I never saw a more beautiful flower than the crimson *Mrs. Birkmyre*. In the rockeries the various *Primroses* are fine, though somewhat singed by frost; while I have a fine specimen of *Pulmonaria virginica* in grand bloom. The *Lilies* never promised better; from *auratum* to *candidum* all are coming up like Hop-poles. *Roses* are a dead failure; those which were supposed to be alive at pruning time have stood still or gone back

double variety of the colour of *auriculæflora*), spring or summer *Snowflakes*, *Fritillaries*, and *Forget-me-nots*, the last quite unequalled in colour, to say nothing of shrubs to me unknown, as the fragrant *Peppermint*. The soil appeared to be nothing but a dry, hungry sand, but it was very deep and well manured with sea-weed. I have flowered *Fritillaria Moggridgei*, and think it very dear at 2s. 6d. per bulb.

H. M.

SAWDUST AND ITS USES.

OF late a good deal has been written respecting sawdust as a fertilising agent. I have known it to be applied beneficially in the garden and on the farm for at least thirty years. In what I may call its raw state it is, as "W. B." (p. 382) says, fit for nothing but growing fungus; but I may add that there is other matter of as questionable a character freely buried in many places in garden



Cycas undulata.

since. *Pæonies*, *Irises*, and the spring *Phloxes* promise well, but we sadly want twenty-four hours' rain. *Anemone apennina* was loaded with bloom, but I had not more than a couple of days' enjoyment of its sky-blue flowers when a nipping 12° of frost came and turned the edges of the petals white. *A. fulgens* and *stellata* fulgens are thriving, the former glorious in a cool house. Taking it altogether, this spring has been the most unsatisfactory in my experience. Many flowers have died outright, and those which have lived to bloom have had their glory curtailed or marred by bitter winds and frosts. But if May only be kindly, we may yet summon new hopes. I was in Anglesey last week, and was charmed to see the wonderful profusion and variety of *Polyanthuses* in the well-kept cottage gardens. The boatman at the inn where I was staying took me to his garden, where I saw growing, with most enviable vigour, numberless *Polyanthuses*, *Primroses* (including a

ground. I allude to the practice of trenching and digging-in various kinds of prunings, decayed wood, and such-like, all of which encourage fungus. This reminds me that about thirty years ago I read an account, in a journal devoted to gardening, of a serious premature decay affecting a line of very fine Coniferous trees in one of the best Pinetums in the kingdom, and, on examination, the roots were found to be covered with fungi. The explanation was to the effect, as far as I can recollect, that an old hedgerow had been levelled in laying out the ground, burying in the ditch both root and top of all then growing thereon, thereby causing the production of fungi. I have known two or three gardens laid out lately on pieces of unequal ground on which there were considerable quantities of brushwood, scrubby trees, pollards, &c., the whole of which was laid in the hollow places, and covered over to the depth of from 1 ft. to 3 ft. This was done for economy's sake, and also for drainage.

There is a want of accuracy in the reasoning of those who advocate the application of sawdust to land—pure and simple. They argue that because this article is beneficial in rendering heavy land light and friable, therefore it must be consistent to reckon it as manure. Now this is incorrect. The chief principle I was taught in reference to this matter, and have since practised, is to put new lime in an accumulation of sawdust, and when thoroughly slaked and incorporated to spread it over the ground made ready for its reception. Neither lime nor sawdust can be called manure, but both are valuable agents in the transition of heavy land to a more genial state, and consequently better to work when used in combination. The recommendation of saturating sawdust with urine is a good one, and I may add soap-suds. By using sawdust as just described on retentive soils it will prove beneficial eventually, if not immediately.

Torquay.

JOHN COLE MCARDLELL.

CYCAS UNDULATA.

The distinct and noble looking plant represented in the annexed illustration is one of Mr. B. S. Williams' recent introductions, and will be welcomed by all lovers of the Cycad family as a valuable addition to that handsome group of plants. Although Cycads differ considerably in appearance when young from that of a maturer age, there is in the breadth and undulation of the pinnae and bold graceful habit of the leaf of this plant something so distinct from any species in cultivation as to justify its possessors in considering it a new species. The species which it seems to resemble most is the rather rare *C. Rumphii*, which, however, lacks the character, rare in Cycads, of undulation so distinct in the plant here figured. Few gardeners are unacquainted with that most beautiful and valuable exhibition plant *C. revoluta*, whose deep green feather-like leaves and graceful habit are so effective in a group, and which may be seen in perfection in the collection of Cycads at Kew. Besides this species, however, there are others equally beautiful, of which *C. circinalis*, *C. pectinata*, *C. media* are good examples, and the smaller species, *C. gracilis* and *C. siamensis*, with several other less familiar kinds, may be mentioned as worthy of general cultivation. None of the kinds mentioned are at all difficult to manage, a remark which may be said to apply to all Cycads, with very few exceptions. In fact, it may safely be said that when once established it takes a great deal of rough treatment to kill a Cycas. The Cycads are natives of various parts of tropical Asia, Polynesia, and Australia, *C. undulata* being a native of the South Sea Islands. From the seeds of *C. circinalis* a kind of sago is procured by the natives of Malabar, and in Japan the pith of *C. revoluta*, which abounds in starch, forms a much esteemed food. It may be interesting to some to learn that Cycads, although resembling in some respects members of the Palm Order, are in no way related to Palms, but form a distinct Order in themselves closely related to Conifers. By some of the earlier botanists they were considered to be anomalous members of the Fern tribe, an opinion held by Linnaeus. According to geologists, undoubted traces have been found of members of the Cycad family having existed in this country at a very early period.

Z. B.

THE ROCK GARDEN.

A DISTINCT and very interesting Fritillary is *F. parviflora*, a kind much in the way of *F. Thunbergii*, but decidedly more showy, and evidently a variety of *F. verticillata*. We had it from Messrs. Woolson and Co., Passaic, New Jersey. *Saxifraga pedemontana* is also a desirable plant; it has a caespitose habit and good-sized pure white flowers. *Delphinium tricolor* and *D. nudicaule* should, I think, be associated with alpenes, if only in order that they may get more attention paid them than they usually receive, and they are worthy of it. *Veronica cuneifolia*, on account of its compact prostrate habit and abundant pale blue flowers, produced so much earlier than those of many alpine Veronicas, ought not to be omitted from any good collection. *Arabis petraea*, which is very dwarf and distinct, has white flowers, resembling very much those of a *Hutchinsia*. *Phlox setacea* and its varieties, where grown in large tufts, show themselves very conspicuously. In brilliancy there is nothing to compare with them, and a decided advantage which they possess is that they put in an appearance when *Aubrietias* begin to fade. *Gentiana bavarica* excels almost in intensity of hue even that of the vernal *Gentian*. Although somewhat similar in appearance at first sight, yet on close inspection

their distinctive characters are sufficiently obvious. At the base of the rock garden we have means of turning on a little stream of water, which in dry weather greatly benefits the plants. Associated with this beautiful *Gentian* is the charming *Phyteuma Sieberi*. Of all the Rampions, I question whether there can be a better one of alpine character than this. The secret of success in its culture is abundance of moisture. Munby's showy little *Violet* should not be forgotten, nor *Ranunculus parnassifolius* for a moist situation. The alpine *Lychnis* is quite dazzling. *L. lapponica* only differs from it in having larger flowers. Contiguous to the last named plants are some half-dozen *Lewisia rediviva* already full of flower-buds. *D. Fioniana* is a shrubby and little-known *Daphne*, and at the same time very desirable. *Thlaspi rotundifolium* and *Ionopsidium acaule* are very pretty lilac-flowered crucifers. In the bog garden, *Mertensia paniculata*, *M. virginica*, and *M. sibirica* are in flower. In the border, *Polemonium reptans* and *Orvala lamioides*. T. D. HATFIELD.

A PLAGIARISM.

IN an "Epitome of Gardening," by Moore and Masters, just published, permit me to draw the attention of your readers to the following bare-faced plagiarism from my chapters on "Improved Pruning and Training," in THE GARDEN, and lately reproduced in my book on that subject. On the subject of pruning, page 153 of the "Epitome," occur the following statements, which I give in a parallel passage with that from the pages of THE GARDEN and in my book, omitting a few extraneous observations in the latter:—

From "Epitome of Gardening."
Of late years the "extension system" has in many cases been adopted. The maiden tree is headed down and two shoots led away right and left. Two laterals should be allowed to grow from the upper side of them, one from near the base, the other from near the middle, all the others being pinched out beyond the second or third leaf during summer, but cut away to the last bud in winter. The tree will thus consist of six shoots, probably 3 ft. to 4 ft. long, which are not to be pruned unless they are unequal in strength, a defect which is rather to be remedied by summer pinching than by winter pruning. The second year three young shoots are to be left on each of the six—one close to the base, one about the middle, and one at the point, the rest being rubbed off. These three shoots will produce laterals, of which one or two may be selected and laid in, and thus a number of moderately strong fertile shoots will be obtained, and at the end of the season a comparatively large tree will be the result.

From "Improved Pruning & Training."
Commencing with a cut-down maiden tree two shoots are led away; as these grow they will push laterals or secondary growths, and of these two at least should be led from the upper side of each, one from near the base and one from near the middle of the shoot; the other should be pinched beyond the second or third leaf, and kept pinched throughout the summer, but cut away to the last bud in winter. These shoots and laterals should be encouraged to grow, and by November the two main ones will probably be 3 ft. or 4 ft. long. The second year all the buds should be gradually rubbed off except three on each of the six shoots—one close to the base, one about the middle, and the point one. These young growths will in their turn produce laterals the same season, as in the first year, and one or two may be originated from each on the same principle, and laid in also. This dividing and sub-dividing of the summer's growth spreads the vigour of the tree into many channels, and produces a greater number of moderately strong and fertile shoots. At the end of the season a comparatively large tree will be the result.

After what has been said respecting my book in the *Gardeners' Chronicle* it seems hardly credible an editor of that paper and author of the "Epitome" should have stooped to pilfer its pages; but the above passage speaks for itself, and is, perhaps, one of the clumsiest plagiarisms that was ever perpetrated. We all know the horror your contemporary entertains regarding such practices, and how "a feeling of what is due to the honour of journalism" has prompted it to read severe lessons to its neighbours occasionally, who have never been guilty of an offence like the present, but henceforward let it be dumb. The above, however, is not all. If any one can read the instructions given in the "Epitome" (in the pages immediately following that from which the above is abstracted) on the subject of fan training, and come to any other conclusion than that they have been written after a careful perusal of my directions for training the Plum and other stone fruits, I shall be much surprised. The tree with the ten shoots in the "Epitome" bears an uncommon likeness to mine and is described nowhere else. The worst of it is the authors of the "Epitome" have given that passage from "Improved Pruning and Training" as descriptive of the extension system generally, but which is intended to only apply to "Peaches under glass," and is wholly inapplicable in other cases. If the compilers of the "Epitome" have not exercised more judgment and discrimination in the rest of their work than they have done in this, the book will be better out of any gardener's hands, for it will be liable to mislead. The authors have stated in the *Chronicle*, too, that the extension system is old, common, &c., and in their "Epitome" that it is a practice "adopted of late years!" I am afraid this dual editorship is not a happy union. The mistake, too, that the *Chronicle* has made in reviling unconsciously the delineations of the "Gardener's Assistant," for which one of its editors is responsible, has amused readers. The hoax was unintentional, but it

was complete. No one will be deceived by the *Chronicle's* attempts now to show that fig. 265 of the "Assistant" is not what it is expressly described to be. It cannot get over the express injunctions laid down in the same page, to originate the side branches in "tiers," as there delineated, and to "depress them to nearly the horizontal line"—i.e., right angles. Fig. 277 is still worse, and the trainer is told to follow it accurately in every detail. The figures deserve all the abuse the *Chronicle* has bestowed upon them, but the editor of that paper is their avowed advocate. The *Chronicle* hopes if I publish another edition of "Pruning and Training," &c., that I will be careful to state what is copy and what is not—a piece of impertinence, which, to one cognisant of the laudable conduct of the authors of the "Epitome," is enough to take one's breath away. Should another edition of the "Epitome" be called for, it is desirable that the authors "be careful to make their acknowledgments to the right persons," and particularly to myself, whose work they have abused and yet appropriated without a word of acknowledgment to pack their own timid and meagre pages. There is not a borrowed line in my book that is not acknowledged, and as for fig. 11, it belonged as much to me as to the "Gardener's Assistant," for the diagram has been used before they adopted it. I am quite sure that every honest man and gardener will be on my side in this matter, and I have letters from well-known men expressive of the contempt felt for the conduct of your contemporary, and which will, I have no doubt, be intensified when they read this further revelation.

J. SIMPSON.

Wortley, Sheffield.

NOTES AND READINGS.

THE number of gardeners advertising for situations in the horticultural and other papers for a long time back, and the unusual number of men known to be in the nurseries waiting for places, is regarded, and with some reason, as a discouraging prospect by the rising generation of gardeners—always a too numerous class considering the demand for their services. The depression of trade, and particularly of agriculture, no doubt accounts for this state of things, but the prospect is worse than it has hitherto been for gardeners. The lists of bankrupts and bills of sale, &c., are significant enough in themselves; but when we hear of whole estates being left tenantless—thrown on the landlord's hands, or the best of the land being let at almost nominal prices in all parts of the country, it bodes ill for the prospects of horticulture in private gardens. Reductions are the order of the day; even market gardeners are said to be feeling the pinch, and no wonder, for we believe that never at any time within the memory of the present generation, at least, has so much of the produce of private gardens found its way into the market as at the present time.

Good may, however, come out of this state of things. Gardening in private places will probably be cheapened, and measured more by a debtor and creditor account than heretofore. There are many ways in which it might be cheapened—in the management and the formation of our gardens, and in the construction of our hothouses. In all these there is a certain amount of prodigality apparent that might be obviated.

We do not know whether the plan of remunerating gardeners by a commission on results (in addition to their wages) has ever been tried or suggested, but the idea is not derogatory to the dignity of an employer or the position of his gardener, and the scheme would, no doubt, be mutually advantageous in a pecuniary sense. Such a system would probably lead to the doing of many of the simpler operations of gardening in a cheaper, but not less successful way, and gradually promote utility of purpose and economy.

The gardeners in private places are not better kitchen gardeners than market gardeners of the better sort, but they have more particular, not to say fastidious, notions of order and management that tend to increase the cost of production. Nothing looks more satisfactory than good crops and clean ground, and both of these one sees in the nursery and well-managed market garden; but in private gardens much of the work that should be spent in purely cultural matters is mis-spent in keeping useless walks and edgings, trimming alleys and beds, and frittering away the labour to perfectly useless ends. There are plenty of gardeners who, judging from their practice, seem deeply imbued with the conviction that their Onions or Carrots, &c., will never vegetate unless the beds in which

they are sown are laid out on mathematical and accurate principles, and the same crotchety fastidiousness enters into all their operations and is all profitless work.

But it is probably in plant culture more than anything else that so much energy has been wasted. The now popular and graceful fine foliaged and flowering plants, including Orchids, that are so much cultivated for decorative purposes, have greatly lessened the gardener's work of staking and tying, &c., but much time is still needlessly spent in the specimen business, not always with the object of "showing," but simply from example and habit. Variety and artistic arrangement in greenhouses or conservatories and such like structures have been too much lost sight of. It was no uncommon thing to see good plant houses that never contained anything from one year's end to the other but a few barren specimens but which could have been made ten times gayer and more attractive had they been furnished, or at least partly furnished, according to the time of the year, with even the cheaply and easily grown pretty plants that find their way from Covent Garden all over the metropolis in the huckster's barrow, whose collections excite the admiration of provincial gardeners who see them for the first time.

Some cultivators have deplored the decadence of hard-wooded plant culture, and there can be no doubt that these plants are now less popular than they were, but they have made room for a greater variety and a more constant display of flowers; and although one does not wish to see the days when our finer Heaths and hard-wooded stove and greenhouse plants will lose favour, it is not desirable they should usurp so much attention and favour as they have done.

The flower garden is not the only department in which the "one idea" system has been carried on, for in days hardly yet gone by it was a common thing to see whole houses devoted, perhaps, to Heaths exclusively, another to Geraniums, and another to Fuchsias, and so on, these being succeeded in their season by other exclusive subjects during the whole year—certainly a very barren kind of gardening. Devoting a house to Roses or Orchids and such like is another thing, because they are popular subjects, and present us with great and striking variety, and are not so difficult to manage comparatively speaking.

In the flower garden a reduction of the cost will come with a simpler style and purer tastes. Whatever may be said of the comparative cost of the formal style in the planting of the garden, there can be no question that the terrace and parterre garden, with its massive walls and other architectural adjuncts, is the most expensive at the outset. In a terrace garden like that figured in THE GARDEN last week thousands of pounds are sunk before a sod is laid or a tree planted—sunk, as many think, for a mere idea and in doubtful taste. The walks, edgings, and appurtenances of these gardens alone require much keeping, and kept they must be, for the least neglect mars the effect of the formal style. A superintendent of a well-known garden of this kind told me lately that on being asked by his employer to make some reduction in the expenditure, he suggested it should be done on the "terraces," which, being laid out in innumerable small beds of flowers, Grass, gravel, Box and Laurel figures and edgings, &c., was the most laborious part of his charge. The weeding of the walks and other intricacies alone required much labour. A simpler plan, embracing more Grass and more flowers, and a greater variety of the latter, the gardener was of opinion, could be kept in good order with about two-thirds less labour.

Recurring severe winters and untoward springs have shown the uselessness of not a few of our ornamental Conifers for planting as single specimens on lawns or anywhere except in sheltered situations. Numbers of Araucarias are ragged and blackened spectres, and Wellingtonias, between frosts and exposure to the gales, are absolute scarecrows; but those who have been persuaded to plant avenues of such trees and Pinetums are just beginning to realise the fact. Nordmann's Pine, the Deodar, Austrian Pine, the common Silver Spruce, and common Cedar are really the only kinds in some districts which have not suffered badly. The late east winds, the most cutting and severe remembered, experienced for a long period have completed the destruction begun by the frost, and now many

Conifers are absolutely leafless. We do not remember to have seen the common Deodar in this condition before, but both it and the *Abies Nordmanniana* and a number of others are almost denuded of leaves.

I am willing to admit that the modified recipe given by "O. P." for the gas-tar paint for Vines (one of tar to eleven or twelve of the other ingredients) is a very different thing, not from smearing with gas-tar, but from the original recipe given at page 318, wherein a pint of tar to six of water is recommended and clay and hot lime besides. There should be no vagueness about such matters, and if anybody has the courage to try the original recipe perhaps they will report the result by-and-bye.

Mr. James Scrymgeour, of Dundee, is, according to one of your contemporaries, rather hard on exhibitors. "The monopolising care, attention, skill, and exertion required for special flowers, fruits, and vegetables, for which they (gardeners) expected prizes and honours, proved detrimental to the general interests of the garden." In some cases where specimen plant growing is carried out on a monopolising scale this may be true to some extent, but in the case of fruits it hardly applies. Where general excellence is aimed at a gardener cannot produce single bunches of Grapes or single Peaches or Pine-apples, &c., to order. He must grow these by the houseful to succeed in the production of prize specimens, and his employer is more benefited by his success than any one else. I can state that I never knew a constant and successful exhibitor of fruit who had not proportionally good crops to show at the same time. Sensational bunch growing may be an exception, but I am here speaking of crops of general excellence. "Great bunches of prize Grapes raised at the expense of numerous bunches nipped off the Vine without the opportunity of ripening were," Mr. Scrymgeour says, "not so sweet and pleasant as the ordinary bunches." He had tasted of the great berries of the prize bunches and found them "poor indeed," and the biggest bunch ever shown was "as sour as Crabs." He extolled the gardening productions of the working man, and asserted that they were in numerous cases as good, and even better, than those of the gentleman's gardener, which is a satisfactory matter, and we are sure gardeners will not begrudge the working man his success. PEREGRINE.

The Excelsior Lawn Mower.—We have made a trial of this machine and find it has such good points as will permit of its being recommended. Mowing machines may now be divided into two principal classes—first, those which do their work best regardless of labour; and secondly, those which do their work reasonably well, but with the least labour possible. All the American machines which we have tried come under the second class, for, not being provided with more than three blades, none of them will cut a lawn without leaving ribs in the Grass—some more and some less, but all showing this patent defect in the eyes of a first-class gardener. The editor of the *Field* has tried the Excelsior, and says of it: The English best machines can turn out work in which not the slightest variation in surface can be detected; but even with this in their favour they require at least 50 per cent. more labour than the Excelsior lawn mower of the Chadburn and Coldwell Company, 223, Upper Thames Street. A 14-in. machine of this make can readily be worked by a man of average strength for hours together, even when set to a good cut; and this is no doubt a great advantage to many gentlemen who either mow their own lawns or keep a single gardener. A second cross-mowing removes the ribbing almost entirely; but still the surface will not compare with that left by the machines of the English makers. The cog-wheels are all covered in, and the bearings are cast separate with a view to replacement when worn out, all the parts being interchangeable, and obtainable at fixed prices from the offices of the company.

Garden Appointments.—Hasness Hall, Cockermouth, Cumberland, Mr. J. Taylor, late of Isel Hall, Cockermouth. Clarendon Park, Salisbury, Mr. Hill, late of Tring Park. Camp Ville, North Shields, Mr. W. S. Campbell, late of Lucan House, Ripon. Fern Hill, Thorpe Hamlet, Norwich, Mr. T. Lowms, late of Longford Castle, Salisbury. Marston House, Frome, Mr. W. Iggulden, late of Orsett Hall, Romford. Belmont, East Barnet, Mr. T. Record. Melchet Court, Romsey, Mr. Benham, late of Henham Hall, Suffolk. Wherwell Priory, Andover, Hants, Mr. J. Spaven, late of Springfield House, Ulverstone. Howsham Hall, Kirkham, York, M. J. Hatherly, late of Hesterton Hall, York. Attingham Hall, Shrewsbury, Mr. W.

Spinks, late of Oaklands, Preston Brook. Creedy Park, Crediton, Devon, Mr. W. Seward, late of Castle Hill, Devon. Glyliffon Park, Carnarvon, Mr. M. Hartwell, late of Muncaster Castle Gardens, Cumberland. Elmwood, Bickley, Mr. J. Paul, late of Morden Hill, Lewisham. Hazel Hall, Epsom, Mr. W. Manning, late of Fetcham Rectory, Leatherhead. The Cedars, Leamington, Mr. F. Southam, late of Farthinghoe Rectory, Northampton. Ospringe House, Faversham, Mr. H. King. Highercoft, Husbands Bosworth, Mr. G. Radford, late of Streatham Hill. Caterham Valley, Mr. W. Millard.

THE KITCHEN GARDEN.

Mid-season and Late Peas in Trenches.—For main crops of Peas we usually sow in shallow trenches—a practice connected with which there are many advantages over that of sowing on flat-dug ground, not the least being that most of the land that has been dug up all the winter, and in first-class condition for seed sowing, has been monopolised for early Peas, Potatoes, and other crops that it is desirable to hasten to maturity as rapidly as possible, leaving us only quarters that have produced crops of winter Broccoli or greens of some kind for our late and main sowings of Peas, Beans, &c. It is also frequently a great advantage to get one crop sown before the other is cleared from the ground, and this can easily be done by the trench method of sowing. Supposing the Broccoli or Cabbage stumps are 3 ft. apart, we should take out a shallow trench in every third row; that will leave the rows of Peas 9 ft. apart. Some good short manure should be dug into the trench, as if for Celery, and the Peas should be sown thinly all over the surface, which is far better than crowding them in drills. Some of the soil thrown out should then be placed over the Peas, leaving the trenches nearly level. By the time the Peas are up and fit for stakes, the stumps of the preceding crop may be generally cleared away, and the soil forked or dug over, according to whatever intermediate crop is to be grown. A good coating of manure or even litter on each side the row of Peas after they are staked will greatly help to prolong their fertility and prevent mildew. One good soaking of water and liquid manure will keep crops treated in this manner green and healthy in the hottest seasons for a considerable time; and I may mention that, although we find the dwarf early Peas so valuable for the very earliest crops, the produce from them is very small compared with that of the tall varieties, which, if treated as above described, continue to bear in succession for a long period. The intervening spaces, being partially shaded, are invaluable during hot weather for salads and other crops that enjoy partial shade, and on soil that has not been previously occupied with the Brassica tribe we generally get a late summer crop of Walcheren Cauliflower. —J. GROOM.

Dwarf Green or Scotch Kale.—One of the hardiest of winter Greens, and about the last to run to seed, is the Dwarf Green or Scotch Kale, a valuable vegetable in such seasons as the past, when Greens have been reduced to a minimum. Seeds sown now, and planted out after early or between late Potatoes, will be quite forward enough to make good dwarf compact plants by the time winter sets in, and the opener and harder they are grown, the safer they will be from excessive frost. The heads or crowns may be cut towards the latter part of the winter, for we always use up all tender Cabbage sprouts and similar Greens as long as they are procurable, and, after the tops of these hardy Kales are cut off, they will quickly become furnished with side sprouts, that are amongst the most delicious of all the Brassica tribe, and they continue to produce them without running to seed as long as sprouts are in request. As soon as spring Cabbages become plentiful, the stalks may be dug up and the ground prepared for succeeding crops. —J. G., *Linton*.

MARKET GARDEN NOTES.

Wild Primroses.—Very great is the number of roots of these charming spring flowers annually lifted from woods and hedgerows and sent to the London markets, and of all places to which such sweet emblems of the country are sent, truly London is a bourne from whence none ever return; it seems to be gradually swallowing up the most pleasing of our wild flowers. Plants are not alone, however, thus destroyed; those left are also largely deprived of their blooms, and with them goes all hope of seed—Nature's means of reproduction. It is difficult not to feel that in time this may lead to the almost entire extinction of the wild Primrose. There are even now vast districts in which it is not met with in a wild state, and those in which it is abundant are from these causes, and also from the gradual diswooding of the country, being contracted. The only

remedy for this state of things must be found in widely cultivating this Primrose for seed, and also for market, thus diverting the trade in this plant into a better direction. In a market orchard not far from here there may now be seen long lines, over 100 yds. in length, of wild Primroses in beautiful bloom growing beneath Currant bushes and overhanging fruit trees. These were obtained from a Hampshire wood last spring, and were planted out in this shady place, where they have done well. I trust as one result that the grower will save a good quantity of seed and sow it. Thus in a few years there would be no reason why millions might not be ready to supply the market. What one can accomplish others may do; and as the Primrose will ever be dear to English people, it is certain that a very profitable trade would be the result. No better method of saving our wild Primrose from destruction in its native haunts could be devised than the conversion of it into an universally-grown garden and market plant.—A. D.

Marketing Vegetables.—This subject formed quite a prominent feature lately at a farmers' club meeting, and the following remarks in reference to it are made by a correspondent in the *Field*: The Essex market gardeners suffered last year from the over abundance of their crops, making vegetable produce to be a drug in the market. The ordinary channels of trade were quite choked up, and they suffered. There is a strong probability that if they had taken the pains to go a little out of the ordinary course, they might have obtained remunerative sale even then; inasmuch as all through the summer and autumn the generality of the public in the metropolis and its suburbs found all kinds of vegetables grown as scarce and dear as ever. Still, had it been otherwise for just that once in a way that satisfactory returns could not be netted, ought that to be deemed sufficient to decide the matter. A better system of administration would no doubt do much, not only to cause larger and more remunerative sales of vegetable produce when crops are abundant, but to cause markets to expand for it at all times and under circumstances in general. All growers within a reasonable distance of either the metropolis or any large provincial town would do well to avoid the ordinary channel of wholesale trading, because the whole of the gilt would be only too likely to be taken off the gingerbread by salesmen and middlemen. Retailing from carts in the public streets may lead to perfectly remunerative results even at the very period when Cabbages raised less than ten miles from London do not pay the cost of transit to Covent Garden Market. In some cases it would also be found remunerative for growers to open stores or stalls for the sale of their produce; and no doubt an extension of the principle of co-operation, having for its object opening direct communication with the public, would extend very much the facilities for growing more crops, and making a profitable disposal of them when raised. The extent to which the Continental white Broccoli is made sale of in the metropolis was commented on. One speaker regarded this as interfering very much with the interests of English market gardeners; but the very fact of foreign vegetables coming in largely shows that there is abundant room for more home-produce to be brought to market. Of course the earlier and warmer springs of the Continent may send first fruits to Covent Garden before they can be brought to perfection in this country; but in this case there is no competition worthy of the name more than when early Cherries, Peaches, and Apricots are brought to Covent Garden from the Continent. At the period when the white Broccoli appears so generally in the London shops, there is very little of that vegetable obtainable from English gardens and farms. Neither do the large number of new Potatoes, which at the present period are being brought extensively across the seas, interfere with the interests of many English producers; but as the regular home-supply season opens for any vegetables whatever, they, being bulky and weighty in their nature, ought to be rendered from fields here at far cheaper rates than foreigners could afford to send them.

Extensive shiploads of Potatoes are brought to these shores from the Continent, not merely when the season is early and first fruits yield good prices, but all the year round; and surely this is one branch of vegetable growing at which English farmers ought to be able to beat their foreign competitors fairly out of the field. Very large profits are made by Potato growing in some parts of Scotland, the fens of Lincolnshire, and some other districts; but the esculent is well adapted to a great many soils; and if the railway companies could only be brought to charge lower rates for transit, there is no reason why Potatoes should not be more extensively produced in England. Very many are deterred from growing them from the mistaken impression that their cultivation involves a great deal of manual labour. On most of the large Scotch farms the planting is now effected by a drill, which I have seen in action, and which seems to deliver the sets regularly and without the slightest need of manual supervision beyond that of the driver of the machine. The hoeings and stirrings between the rows, when the plants are growing, would in any case be effected by horse hoes

consequently little labour would be required until the crop was ripe and fit to be harvested. Even for the latter operation good digging machines have been invented, which work well when the soil is dry; although it must be confessed to be a difficult matter to raise the tubers by a machine clear of soil when the latter adheres to them badly, and, from not working well, has a tendency to cover them up.

As for Turnips, Cabbages, Carrots, Broccoli, and various other vegetables well adapted for farms, no less than for gardens, they should be grown much more largely than at present. Of course it would be wrong to go into the thing too largely, unless under the peculiar circumstances of a store or market for ready sale being always under direct command; and when the grower goes into the matter partially and does not make it his chief business, he should be in a position to be able to buy in surplus stock to consume the crops at such times when they will not pay for marketing. Warnings held out, therefore, against the extension of vegetable culture seem not only founded on inconclusive evidence, but to have nothing in reality to justify them, except that some over-sanguine enthusiasts in this matter, as well as all others, would be liable to plunge into the enterprise injudiciously without employing that cool, far-seeing discretion which should guide all business transactions.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MAY 10.

AMONGST exhibits submitted to the floral committee on this occasion were some very fine new plants, and first-class certificates were awarded to the following:—

Messrs. J. Laing & Co., Stanstead Nurseries, Forest Hill, for—

Begonia Davisi fl.-pl. superba, which, without doubt, is the finest double flowered tuberous Begonia yet raised. It possesses all the fine qualities of B. Davisi as regards sturdy habit of growth and freedom of flowering; the flowers form a perfectly circular rosette of petals 3 in. across and of a rich deep crimson-scarlet, and in the half expanded state even deeper. Several flowers and buds were borne on a small plant about 1 ft. high, and they had a very brilliant effect.

Messrs. J. Veitch & Sons, Chelsea, for—

Aralia Chabrieri.—An elegant plant, quite distinct from any other cultivated kind. The stem is erect and thickly furnished all round with pinnate spreading leaves about 9 in. in length. There are from five to ten pairs of leaflets, which are $\frac{1}{4}$ in. in width, of a deep shiny green with a medial rib of dark red, which, together with the elegant habit, renders the plant very effective. It will prove a valuable fine foliaged plant, and will be particularly desirable for dinner table, and vase decoration.

Gloxinia Radiance.—A variety with erect flowers of medium size, but of an extremely rich velvety carmine hue inside, gradually shading off to a purplish-lake, the exterior being pale pink. It also possesses the additional advantage of being a robust grower, the deflexed leaves being unusually broad and vigorous.

Messrs. Osborn and Son, Fulham, for—

Ribes pumilum aureum.—A very dwarf growing variety having permanently golden leaves. Being perfectly hardy it will be a valuable plant for rockeries, margins of borders, shrubberies, &c., where it will be extremely effective from early spring till autumn.

Messrs. Carter and Co., High Holborn, for—

Primrose Cloth of Gold.—A beautiful sulphur-yellow Primrose with perfectly double flowers—so double, indeed, as to form pretty compact rosettes. It is, moreover, a vigorous grower and profuse bloomer; the plants exhibited had been lifted from the open ground and were thickly furnished with blossoms.

The other plants shown in the council room included, from Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, *Cattleya Reineckiana*, a lovely variety with large flowers of the Mossia type, having pure white sepals and a broad shallow lip of a rich amethyst and orange, and beautifully crisped at the margins; also *Cypripedium Dominyanum* and *C. caudatum*, the latter showing how distinct it is from the former, being altogether of a darker hue. From Messrs. Veitch came a pretty Japanese *Primula* from Ichang, abundantly distinct, especially in foliage, from any other cultivated kind, the flowers being pale mauve and borne in umbels; *Alpinia albo-lineata*, a prettily variegated-leaved stove plant; *Indigofera decora alba*, a beautiful white-flowered variety, the flowering being produced in hanging racemes; *Chionographis japonica*, the Japanese herbaceous plant certificated last year; *Gloxinia Purity*, with large, pure, white, erect flowers. G. The Czar, with deep violet-purple erect flowers; and a new Japanese Maple with broadly-divided

leaves of a deep brownish-crimson, named *Acer polymorphum latifolium atropurpureum*.

Messrs. Laing & Co., Forest Hill, furnished a group of new Caladiums, the best of which were Madame Lemoine, Gerard Dow, Louise Duplesses, Luddemannianum, Comtesse de Condeixa, Paul Veronese, Sanchoniathon, Mithridate, and Alfred Bleu, all with large, handsome, semi-transparent foliage. The same exhibitors also contributed *Coleus* Mrs. Baxter, one of the best of the newer kinds; *Begonia* Scarlet Gem, Mrs. Albert Brassey, Commodore Foot, all tuberous kinds, with intensely scarlet-crimson, single flowers; and a double-flowered form of *B. Moonlight*, which probably will be in better condition later in the season.

Mr. Harrison Weir, Weirleigh, Brencley, exhibited three of his seedling Polyanthus, named Triumph, Heart's Delight, and Goldfinch, all excellent sorts, but rather past their best as regards the quality of the flowers.

Mr. Bethell, Sudbourn Hall, Wickham Market, showed *Tradescantia argentea*, a variety with leaves variegated with greenish-white and various tints of green; also *Coleus* Miss Bethell, one of the bizarre type of leaf colouring. Mr. Copley, Tar Headingley, Leeds, sent a *Tropæolum* said to be a hybrid from Ball of Fire, a variety which it strikingly resembles, though the flowers are somewhat larger; a vote of thanks was accorded. Mr. Rivers, Sawbridgeworth, had two or three new sorts of double Pelargoniums, which will probably prove good. A very fine variety of *Masdevallia Harryana* was shown by Mr. Croucher, gardener to Mr. Peacock, Sudbury House, Hammersmith, the colour of which was superb, and the flowers of fine form and size. A seedling of *Anthurium Scherzerianum* was exhibited by Mr. E. Bland, Cranbourne Court, Winkfield, in which the spathe was more elongated than usual. A new *Azalea* with amœna-like flowers, but of a deep rosy hue, shown by Mr. Stevens, is, we consider, a very pretty variety. Mr. Kelman, Chingford, exhibited a new Musk, with small yellow flowers blotched irregularly with red and very effective.

Mr. R. Dean, Ranelagh Road, Ealing, exhibited a choice group of laced Auriculas and Polyanthus and dwarf red and dwarf yellow Wallflowers. Among the laced Auriculas were Mrs. Moore, Samuel Barlow, and Bend Or, all very fine varieties with well-laced edging. Polyanthus Arthur, crimson black with bright gold centre, and *Crimson Beauty* were likewise very fine. Messrs. Carter & Co. exhibited a new Marguerite or Paris Daisy, named Prince Rudolph's Bride, characterised by finely cut foliage and large pure white blossoms with gold centre.

Fruit and Vegetables.—Mr. George, Cuckfield, exhibited a new Melon named Ockendon Hybrid, a large netted, oval, green-fleshed fruit. Another new Melon named Sir Garnet Wolseley was also shown; it is a small, round, netted, red-fleshed variety, said to ripen at least three weeks earlier than Read's Scarlet Gem. A fine fruit of Melon William Tillery was shown by Mr. Buchanan, gardener to Dr. Siemens, Sherwood, Tunbridge Wells; it had been grown under the influence of electric light. The plants were planted in the middle of November last, and the light was brought near them about the end of January, when they quickly bore fruit; Mr. Buchanan also showed Wheat about 2 ft. high that had been sown on 16th December and placed under the electric light. New Black Hamburgh Grapes were shown by Mr. Stevens, Trentham; they were well finished and of good flavour. Mr. Woodbridge showed a dish of Sutton's Scarlet Globe Radish, apparently an excellent early sort. Messrs. Lee & Son, Hammersmith, exhibited fruiting plants of Strawberry Durri, a kind with small, cone-shaped fruits. This variety the committee expressed a wish to adjudge upon later in the season. Mr. H. A. Manns, St. Vincent, Grantham, sent a brace of handsome Cucumbers, named Excelsior, and a brace of well-grown Rollisson's Telegraph for comparison.

The Conservatory was again gay with various large groups of plants. The first in view was Messrs. Barr & Sugden's fine display of Narcissi, Anemones, Tulips, and other flowers. The Narcissi were particularly numerous, and represented a wonderful variety, including all the poeticus, Leedsi, Nelsoni, and Barri groups, and many of the later-flowering Trumpet section. Amongst the new kinds were Nelsoni biflorus, a form with two flowers on each stalk; Falstaff, one of the bicolor type, with unusually large cup of a rich yellow colour; Vincenti, a variety intermediate between Nelsoni and Leedsi, with a deep cup of clear yellow. This group was appropriately awarded a silver medal.

For an extensive group of flowering and fine-foliaged plants Mr. B. S. Williams, Upper Holloway, was also awarded a silver medal. It consisted of Orchids, Amaryllis, Ferns, Palms, Azaleas, Gloxinias, &c., all arranged in an effective manner. Among the Orchids were *Aspasia lunata*, a species seldom seen in flower; *Epidendrum paniculatum*; *Dendrobium rhodopterygium*, *D. Dalhousianum*, *D. Griffithsi*; *Masdevallia trochilus* and *Wagneri*, two curious and rare

species; the new *Odontoglossum polyxanthum* and other species; and the showy *Oncidium Marshallianum*.

Messrs. Osborn & Son, Fulham, had a similarly large group, which, besides fine foliage and flowering indoor plants, included some choice hardy flowers, among which were *Iberis superba*, the best of all, the perennial Candytufts, *Saxifraga muscoides atropurpureum*, the gem of the Mossy group; *Primula cortusoides alba*, the handsome *Corydalis nobilis*; and a large basket of the *Gentianella* (*Gentiana acaulis*). A silver Banksian medal was awarded. Mr. Aldous, South Kensington, had a group of decorative plants and some tastefully arranged vases of flowers, one of which, with crimson Ixias, Lilies of the Valley, Ferns, &c., was particularly elegant. Mr. Turner, Slough, exhibited a new tree Carnation, with large flaked flowers; a new white Azalea, named Madeline, with semi-double flowers of large size and produced plentifully, and the beautiful tricolor zonal Pelargonium Mr. Henry Cox, with leaves having zones of pale yellow, orange-red, purple-brown, and green, all blended harmoniously. The large collection of plants from Chiswick contributed in no small degree to the gay aspect of the building; among these were some choice hardy plants, notably fine tufts of *Androsace villosa*, *Arenaria balearica* in pots, *Gentiana verna*, *Myosotis elegantissima*, and alpine Phloxes.

Scientific Committee.—*Sarracenia*.—Mr. W. G. Smith made some additional remarks on the petals of this plant, having come to the conclusion that they rose when in a saturated atmosphere, in consequence of a strong light being thrown upon them. He exhibited a drawing to show how the uplifting of the petals would facilitate the ingress and egress of insects. Electric light on plants.—Mr. Buchanan exhibited Wheat plants sown on December 17 in the open air and subjected to the electric light. They came up slowly, and were covered with snow. Several plants perished, but the remainder have grown very rapidly during the last five weeks. They were vigorous and green. They were about 15 ft. from the light, which shone upon them every and all night. He also exhibited a Melon planted on Nov. 6. The light, however, was at too great a distance, hence the plant grew very weak; when, however, the light was brought nearer, in January last, it made rapid progress. The question was raised as to the flavour, but Mr. Buchanan observed that no opportunity as yet had occurred of making comparative experiments with those grown in sunlight. A vote of thanks was given unanimously to Mr. Buchanan for his interesting observations. *Elisena*.—Colonel Clarke exhibited a hybrid between *E. longipetala* and *Ismene calathinum*, and which appeared to be identical with *E. deflexa*. The uppermost stamens were sharply bent down and across the tube of the perianth, as in *Ismene*, but the lower were declinate, as in *Elisena*. He also exhibited *Tulipa undulatifolia* and others as well as *Cyrtanthus McOWani*. *Abies Nordmanniana* boughs cut by the frost were exhibited by Dr. Masters. It appears that they had perished through the thaw rather than the frost, for they had been bowed down by snow which melted, and were then subjected to hot sun, the violence of the contrast in temperature apparently having caused their death. Col. Clarke observed that Silver Firs and Norway Spruces had lost their leaders during late winter. Mr. Wilson remarked that *A. Lawsoniana* had also been killed. *Podisoina fuscum*.—Mr. Bunyard forwarded specimen of this fungus on *Juniperus Sabina*. *Primroses*.—Mr. E. Davies forwarded examples of *Primroses* with virescent corollas from Swansea. *Pansy*.—Mr. Noble exhibited a Pansy with remarkably blue posterior petals, which appears to be a new departure in the distribution of colour in that flower. It was an accidental seedling. *Thorns*.—Dr. Masters recorded a very remarkable instance of a Hawthorn around which a wire had been fixed to support a Rose tree. The wire had completely cut through the tree in ten years, but the wound had healed so that the tree had been totally uninjured. He also mentioned a case of a Hawthorn whose stem had been split for about a yard; the whole of this length had re-united. Mr. Buchanan mentioned the case of a Crab tree caught within the fork of a Beech growing and completely surrounding it. The effect appeared to be that it blossomed much earlier than other Crabs in the neighbourhood. Mr. Henslow exhibited Daffodils, in which the membranous spathe had dehiscent in a circumscissile manner, entirely cutting off the upper part. He also showed "Jack-in-the-Green" Primrose from a plant found wild in Ireland; he exhibited some Willow catkins, forwarded by Mr. Marshall, of Ely, who had observed that those from monandrous Willows always flowered from the apex downwards; whereas, catkins from the triandrous Willow flowered from the base upwards.

DURING the week Messrs. W. Paul & Son, Waltham Cross, have had a fine exhibition of pot Roses at the Regent's Park Botanic Gardens, the account of which, from want of space, we must defer till next week.

EXHIBITION OF CLEMATISES.

IN one of the glass corridors at the Alexandra Palace there is now an extensive collection of these popular flowers exhibited by Messrs. Jackman & Son, of Woking. It consists of well-grown specimens, which admirably show what may be accomplished with Clematises under good cultivation. The majority of the plants are in pots with the shoots trained balloon fashion, a plan which shows off the flowers to the best advantage. One remarkable point observable in the pot plants is the unusual depth of the pots, a circumstance to which doubtless the acquirement of such fine plants is attributable. The diameter of the pots varies from 12 in. to 15 in., and that of the plants from 2 ft. to 4 ft. The types represented are chiefly the Patens, Lanuginosa, and a few of the Florida. The Patens, being the earliest to flower of the large-flowered kinds, was most largely represented at the commencement of the show (a fortnight ago), but now the majority consists of the equally beautiful Lanuginosa section, which will be continued to the close of the exhibition.

New Varieties.—Though of these there are but a few this season, they promise to be very desirable, and an advance on older kinds in their respective sections. Miss Crawshaw is a charming variety and very distinct; it is one of the Patens type, but the flowers are larger than ordinary, measuring 6½ in. across; there are eight and frequently a double row of sepals of a delicate soft pink inclining to lilac, and shaded on the medial band with a pale bronzy tint. Belle of Woking, one of the Florida group, has fine double flowers with about eight rows of sepals; the colour is a delicate bluish-mauve or silver-grey, with here and there a flush of reddish-lilac, making a beautiful contrast with the creamy white tuft of stamens; it is a lovely variety, and one that is much admired. Angelina is one of the Lanuginosa type, with flat and full flowers some 6 in. across, and of a beautiful pale bluish-mauve hue; being one of the earlier flowering varieties of the group, it is especially desirable; these and many more have all originated at the Woking Nursery.

Selection of Varieties.—Among the most beautiful varieties of the Patens group best adapted for pot culture are Sir Garnet Wolseley, one of the finest of all bearing a profusion of medium sized blossoms of rich purplish-blue flushed with vinous red; Mrs. S. C. Baker, French white with claret-tinted band; Vesta, very fine with well-formed flowers of a delicate white; Lord Londesborough, deep mauve, barred with purplish-red; Edith Jackman, white, delicately shaded with mauve; Lord Mayo, deep rosy-lilac; The Queen, delicate lavender; Stella, violet, shaded with reddish-purple; Miss Bateman, white; Fair Rosamond, very fine, bluish white, barred with vinous red; Aureliana, pale blue; Mrs. Quilter, pure white; and patens floribunda, a profuse blooming variety with greyish-white flowers. Of the Florida type, with fine rosette-like flowers, the best were Countess of Lovelace, bluish-lilac; Duchess of Edinburgh and Lucie Lemoine, pure white; John Gould Veitch and Mrs. G. Innes, both lavender-blue.

Of the Lanuginosa type, a representative collection should include candida and nivea, both white forms of the species; Princess of Wales, deep mauve; Robert Hanbury, bluish-lilac; Duchess of Teck, pure white barred with mauve; Blue Gem, rich blue changing to mauve; Alba magna, the finest of all the white kinds, the flowers being unusually large and pure; Duke of Norfolk, deep mauve; Otto Froebel, Mrs. Hope, Lady Caroline Neville, and Samuel Moulson. The Viticella and Jackmani types, being late flowering, were not represented. There are some good examples of plants in window boxes, admirably exemplifying what a suitable plant the Clematis is for such a purpose, there being an absence of the usual stiff appearance, owing to the blossoms in all cases hanging on the plant in graceful profusion.

Show of Lily of the Valley.—Among an extensive display of cut flowers and plants in the central hall were fine groups of Lily of the Valley, one of which was particularly noteworthy on account of the unusually fine growth of the plants. This was exhibited by Mr. T. Jannoch, of Dersingham, Norfolk, who grows this flower on a large scale for Covent Garden. A special feature of the group were some pyramidal specimens, between 2 ft. and 3 ft. high. These were formed by placing the roots thickly in pyramidal-shaped wicker baskets, filled with soil in such a manner that the points of the eyes protruded at the sides, so that when the foliage grew the whole would form a compact green mass, and this, interspersed copiously with fine spikes of blossoms, has an extremely pretty effect, and is particularly adapted for table or room decoration, as the plants continue a long time in perfection. A remarkable fact in connection with these fine Lilies of the Valley is that the exhibitor grows and prepares all his own roots, and does not import from the Continent, as is commonly done.

THE ASPARAGUS COMPETITION.

THIS will be held in the horticultural department of the Bath and West of England Society's Show at Tunbridge Wells, commencing on Monday, June 6. Notice from those desiring to compete should be given to the secretary of the horticultural department, the Hon. and Rev. F. T. Boscawen, Show Yard, Tunbridge Wells. All exhibits should be staged on the morning of Monday, not later than Twelve o'clock. The following prizes are offered for the first year's exhibition, and are (except the last two for market growers in Kent) open to growers in any part of the United Kingdom.

Prizes for Gardeners in Private Places.

For the best bundle of Asparagus grown by the exhibitor: 1st prize, £4; 2nd, £2 10s.; 3rd, £1 10s.; 4th, £1. The bundle of Asparagus is to consist of sixty heads. The prizes will be given to the largest Asparagus, provided it be in all other respects unobjectionable. Prizes will not be given where, in the opinion of the judge, there is no merit. The Asparagus must be free of earth, and the bundles will be opened by the judges in all cases where they think it well to do so. No imperfect or "double" heads will count.

Prizes for Amateurs not Employing any Regular Gardener.

For the best fifty heads, £2 10s.; second prize, £1 10s.; third prize, 15s. Grown by the exhibitor.

Prizes for Cottagers.

For the best twenty-five heads grown by the exhibitor, £1 10s.; 2nd, £1; 3rd, 10s.; 4th, 5s.

Prizes for Market Growers.

For the market grower who shall exhibit the best three bundles, each containing one hundred heads, £5 5s. This prize is offered by the Bath and West of England Society.

For the market grower in the county of Kent who shall exhibit the two best bundles of Asparagus, each containing one hundred heads: 1st prize, £3 3s.; 2nd, £2 2s.

LATE NOTES AND QUESTIONS.

Rules for Correspondents.—All communications for insertion in the paper, and all questions and answers should be addressed to the EDITOR. Letters relating to subscriptions, advertisements, and other business to the PUBLISHER. In every case the name and address of the sender is required, in addition to any nom de plume to be used in the paper. QUERIES must be written clearly and concisely each on a separate piece of paper and on one side of the paper only. NAMING PLANTS.—Four plants, fruits, and flowers only can be named at one time, and this only when good specimens are sent. We do not undertake to name varieties of florist flowers, such as Fuchsias, Geraniums, Azaleas.

Adiantum macrophyllum.—I keep this in a stove, but its leaves turn brown. What is the cause?—A. J. B. [The stove is the proper place in which to grow this Fern. The cause of the disease being brown is probably thrips, to which this species is very subject. Let the plant be carefully examined, all the thrips removed by picking off or sponging with clean tepid water, and kept free from them. If there are not any thrips it may have been disfigured by wetting the foliage either in watering or syringing, which should not be practised except with Filmy Ferns. The foliage should be kept dry and the roots moist. We suspect, however, that thrips are the cause, as they are in nine cases out of ten with this species.—M. J. B.]

Silvery-red Pampas Grass.—Some time ago I saw advertised, in an English list, a new Pampas Grass described as bearing a silvery-red plume. Can any of your readers inform me where I can get this variety, as I have mislaid the catalogue and forget the name? I have written to an eminent firm of seedsmen in Liverpool, and they say they find it in a foreign list, and offer to get me a plant in the autumn, but having seen it advertised in this country, I ought to be able to get it here.—AMATEUR, St. Helens.

Deutzias after Flowering.—I have about thirty Deutzias in 5-in. pots; what is their treatment now for blooming next season? They have bloomed very indifferently this.—N. FINCHLEY. [As soon as the weather gets warmer plant them out in the open ground, and lift and pot them in the autumn before frost comes.]

Clematis cirrhosa.—A good supply of this year's seed has just reached me from Algiers. There is more than I can use, and I will gladly send some, on receipt of an addressed envelope, to any amateur or private gardener who wishes to grow this graceful winter-flowering species.—MISS JEKYL, Munstead, Godalming.

Names of Plants.—H. J. E.—1, Saxifraga cordifolia; 2, Ornithogalum nutans; 3, Begonia glaucophylla; send better specimens of 4 and 5, flowers were damaged; 6, Begonia manicata or Auriculata.—Mrs. B.—Habrothamnus fasciculatus (finely coloured specimen).—Mrs. M. C.—Euphorbia sp. (specimen insufficient).—Hooper & Co.—Streptocarpus biflorus.—Miss W.—Borago orientalis.—Columbine.—Maxillaria lepidota.—H. W.—The leaf you send belongs to a species of Acer, but we cannot name from such a scanty material, neither can we name the Fern from such a scrap. C. cirrhosa would suit your purpose.—W. Nelson.—1, Panicum variegatum; 2, Pulmonaria mollis.—W. W. D.—The plants have not reached us.

An old correspondent just arrived from Paris tells us that that city is alive with Lilac and Chestnut blossoms, of which there was no sign at Havre, showing a striking difference in the climate of the two places, only an hour or two apart.

"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

EDITOR'S TABLE.

The various fruit trees, or trees of the great fruit order, grown for ornament have been beautiful this year from the abundance of bloom and the fine weather at the time of opening, the Chinese Pear, the Coral Bud Apple, the various double Cherries, Peaches, and Almonds having all shown their character well. The most beautiful flowering tree, however, that we have seen this year is one not grown for ornament at all, and that is an Apple called Sharp's, of local fame apparently, and that not very great. This we saw in one of Mr. Killick's orchards in Kent last Tuesday. It would be difficult to give an idea of the glow and beauty of the trees; the buds are large and bold and of a purple-crimson hue, the flowers very large and the bloom abundant. A group of these trees would be splendid on a lawn. Among other kinds remarkable for fine form as well as abundant and handsome bloom may be mentioned Graham's Russet. There is much good to be done in places of any size by planting yearly groups of fruit trees in positions where their beauty in the landscape might be desirable, and where eventually they could be grown in the Grass as lawn trees. Standards grafted on the free stock must, of course, be used.

From Messrs. Osborn, of Fulham, comes the richest and most varied series of hardy flowering trees and shrubs of the season—just the place from which one would expect them. Among the many changes that have been seen in our London nurseries, happily this is as rich as it always was in what must ever be the best ornaments of the country—its trees. Among many better known we are pleased to see a new flowering tree of real value and distinctness—Host's Pear (*Pyrus Hosti*)—which bears corymbs of delicate rosy blossoms, and, coming into bloom when we have so many white-flowering trees, it is a real gain. The Hybrid Pear (*Pyrus hybrida*), with large corymbs of white buds and blossoms, is also very good, and there are several forms of snowy *Mespilus*, noticeable for the size and whiteness of their blossoms, particularly *Amelanchier v. florida*. There is also a whole series of flowering Currants, such as we did not think existed in any nursery, the best being *Ribes niveum*, *R. aureum serotinum*, and *R. tenuifolium*. With them comes our bright friend the early flowering Bramble (*Rubus spectabilis*), and also a variety of Magnolias. There are a great many seedling Magnolias in cultivation, which do not seem to have any claim beyond the old ones, except the good purple kind called Lenné. Their value and differences may be more apparent in countries where they flower better than they usually do here. Among the various forms of the Japanese Quince, one called *versicolor* seems worth having for groups. Then we have the Judas tree buds, and the various double Cherries, and good blossoms of the Labrador Tea, which, well grown, is really a valuable shrub.

From Mr. Barker, of Littlehampton, the handsomest wreaths of the dwarf double Chinese Plum (*Prunus chinensis fl.-pl.*) we have seen, and precious, not merely for their snow-white rosettes of flowers, but for the pearl-like buds, each firmly set in its little green calyx; the single yellow *Kerria*, which deserves to be well grown among choice

shrubs, and the old double Peacock Anemone. Mr. Barker also sends a splendid series of the Chinese flowering Pear (*Pyrus spectabilis*) and ornamental Apple blooms. His handsome shoots of bloom gives one a new interest in that pleasant country beyond the South Downs. The unfolded buds of the dwarf Chinese Plum make one ask, When will our jewellers take advantage of the models our gardens offer them? Mr. Barker also sends the double-blossomed Plum and the old double-flowering Apple, which, he says, is now scarce, and which he thinks highly of.

The Corstorphine Plane, to use the Scotch name for a yellow-leaved form of the common Sycamore, is suggestive of new ideas in the way of arranging flowers, ways of improving on the usual dry and wiry round of the Ferns used for association with flowers, and which are now almost stereotyped. A single shoot sent from Edinburgh by Messrs. Dicksons, of Waterloo Place, is as fresh as if on the tree. How many beautiful unfolding leaves in all the freshness of their tender greens and browns could be used in a cut state for the same purpose, fringing a dish of spring flowers. Are not the leaves of the season the best accompaniment for the flowers of the season? Tree leaves, too, are so plentiful that we need not take such precautions for obtaining them as are necessary in the case of Ferns and the like. Even such interesting forms of common hardy trees as the above mentioned tree soon grow into leafy specimens. Interesting variations of leaf-beauty in the case of trees and shrubs should then be looked for, the variegated ones not being so important as more delicate changes in the hue of the foliage. The Japanese Maples have of late been lovely in their tender browns, greens, and claret colours; a bank of them at Coombe Wood is a study in beautiful colour.

The Black Currant in a golden robe! a really good variation or rather suffusion, likely to be of some use for its effect in gardens as well as for its foliage in a cut state, as the leaf is good in form, and the golden colour pleasing; the white form of the purple Broom (*Cytisus purpureus*), of a good silvery white, and a more beautiful plant than its parent; the Siberian Pea tree (*Caragana grandiflora*), the best of a not attractive genus; a neat but not large double Cherry (*Cerasus Avium fl.-pl.*) is later and lighter in effect than the other kinds; and the double Morello, which, though not so very double or button-like as other kinds is, nevertheless, very bold and free. These from Mr. Stevens, of Byfleet, who is doing very useful work in trying many kinds of new trees and shrubs.

The shining leaved Laurustinus (*Viburnum Tinus lucidum*), pure white and strong, comes from Ireland. Mr. Poë, who kindly sends the specimen grown in Mr. Spaight's garden at Derry Castle, asks, "Is it not equal to many a shrub grown with much difficulty in stove or greenhouse? And this after the arctic winter we have undergone in this isle."

Bright little bunches of yellow Banksian Roses, the best we have seen for years, come from Gorey, in Ireland, where this Rose has not suffered as in other places. It is one of the Roses worth taking some trouble with as regards planting. With it came racemes of the Wistaria, which we should not have expected to see so soon out in Ireland, inasmuch as the day on which these arrived the Wistaria was scarcely so much "out" about London as these Gorey blossoms. The district from which these specimens come must be very favourable for gardening.

A glorious week, with our gardens full of life and change; the forest and park plantations becoming rapidly leafy, and garden flowering trees and shrubs in bloom everywhere. But most trees and shrubs are behind the flowers, which, before there is any general movement among the woody plants, are blooming in crowds. The present is, perhaps, the worst season experienced for all the finer hardy flowers that are now in bloom. Owing to the long drought many of the best plants have not made their usual growth, and are withering before it. Among the best flowers of the week are the Fair Maids of France (*Ranunculus aconitifolius* fl.-pl.), the white Buttercup (*R. amplexicaulis*), of both of which there are beautiful colonies at Mr. Ware's—little meadows of flowers. Only a few years ago neither of these plants were to be found in gardens. Purple carpets of *Aubrietia* are being out-rivalled by rose and white carpets of dwarf mossy Phlox (*P. subulata* and varieties), and the brown buds of the flower Thrifts (*Armeria*) are glowing into clear rose. The *Narcissi* are gradually leaving us, though the double *Jonquil*, *N. gracilis*, and the Pheasant's-eye are very plentiful and fresh. White and various forms of the Wood Hyacinth, the buds of the fine-leaved *Pæony* (*P. tenuifolia* var.), are very striking over the graceful foliage; the Globe-flowers are superb, nobly typical of our boldest and handsomest northern meadow plants. Starved out of recognition in those weary sandy beds at Kew, they are at Ware's worth a journey to see. Stiff and rich moist land suits them. The American Cowslips are at their best, and well they look as table flowers, but they do not seem to last long. The various forms of the Crimean Iris (*I. pumila*) have suffered much from the drought. They are never seen in good condition in London nurseries, seeming to delight in peat and fine sand. They used to be charming in Mrs. Marryatt's old garden (now Sir H. Peek's) at Wimbledon. Iris nudicaulis is a bolder and better plant, and one which flowers at the same time. The white mossy Saxifrages, evergreen Candytufts, Snowdrop Anemone, and more slow growing alpine Anemone, with its buds clad in pale purple down, are among the flowers of the week that best help in the May garden.

A beautiful series of hardy flowers from Mr. Archer-Hind's garden at Newton Abbott includes many of real merit, and some not often seen. Among these are the lovely Amethyst Hyacinth (*H. amethystinus*) and a pure white variety of it, both better than we are wont to see them about London. The tiny waxy bells of the white variety are extremely pretty. A fine early Everlasting Pea (probably *Lathyrus Sibthorpi*) has showy violet-purple blossoms. The alpine Forget-me-not of the Scotch mountains (*Myosotis rupicola*) seemingly delights in the climate of Devonshire, for it comes to us in fairy tufts, with dense heads of true blue, the whole plant being not more than 1½ in. high, a gem even among mountain flowers. To appreciate fully the gorgeous and strange beauty of the big Anemone-flowered *Pæony* (*P. anemoniflora*) one should have it near the eye in a cut state, then the rich golden margins of the fringe-like petals, encircled by the broad crimson petals, are remarkably striking. Examples of the Rocky Mountain Columbine (*Aquilegia cærulea*) come from this South Devon garden, and very lovely they are, the blue so deep and the white so pure making a charming contrast. A double Polyanthus with gold-laced petals is one of the prettiest that has come to us, the pips forming a rosette; it lasts in perfection in a cut state much longer than a single one. The white *Kerria* (*Rhodotypus kerrioides*) is a pretty white-flowered shrub. Among other good things of the half-a-hundred kinds sent us we single out *Scilla verna* and a pretty pink form of it, the

porcelain-blue Phlox (*P. divaricata*), and the rosette Mullein (*Ramondia pyrenaica*). This plant is often treated as a difficult subject to grow on the rock garden or in pots, but it thrives and flowers freely in peat soil on the edges of beds of American shrubs.

The earliest Poppy, a deep orange variety of *P. nudicaule*, comes from the garden at Munstead, a fine colour and uncommon; also Woodruff and Wood and Apennine Anemones, which grew together in a quiet corner, and associate well together cut; the splendid blue of the *Gentianella* (*Gentiana acaulis*) embosomed in the clear lemon of a bunch of alpine Wallflower, a bunch typical of masses of this *Gentian* on the rock garden, backed by a group of the alpine Wallflower. Pansies, many varieties, with the pure colour and clean growth of the hill air shown in every bloom and leaf; and several shades of Wallflowers which, though they have now so long adorned the cold and windy spring days, are still, at least on the hills, full of colour and fragrance. There is a fine harmony of colour between the ordinary shades and the dull crimson. In the same Surrey hills the little Bluets (*Houstonia cærulea*) is a continual bloomer on most spots in the bog and the rock garden. It blooms more freely than the alpine Saxifrages; some few of the most fragile and pretty are worthy of association with it, such as the deep rose one (*S. purpurascens*) now full of its tiny flowers. The Pearl bush (*Exochorda*) seems happy in the same district, the shoots sent being draped with racemes of white flowers and buds. It is a good companion for the white and other good varieties of *Weigela*. A brave show of blossom, notwithstanding two cruel frosts since the beginning of the month.

The great double Buttercup sent by Mr. Moore from Glasnevin (*R. speciosus* fl.-pl.) proves a valuable cut flower, the great golden rosettes rising up quite solid, and bold and bright as if they enjoyed the town. They really look like a Persian *Ranunculus* as they stand among the other cut flowers, the foliage being also good and enduring. Mr. Moore compared the plant to the double Marsh Marigold, but it is different from that in effect, and a more valuable plant—one which well deserves good culture and a good place. The way the burnished gold petals gradually shade off into the green tipped with gold of the centre is very beautiful, and may be well observed in the cut state.

From Mr. Brockbank, of Brockhurst, Didsbury, come more of those beautiful coloured Primroses of which one never tires. His are particularly well grown and brilliant in colour (they seem much taller and stronger than the Berkshire plants), and this is what he says of them:—

I send herewith a boxful of flowers taken as examples from as many plants now in bloom at Brockhurst, and which show the result of careful culture over five or six years. We have thousands of such Primroses now in bloom, all our borders being edged with them, besides large clumps on the rockeries and in the mixed borders. Nothing could be more beautiful than the display they make, and it has been thus for more than a month, and will last at least to the end of June. Every Primrose has been raised from seed, commencing with the best obtainable from Ireland. In summer the badly formed and weakly coloured plants were weeded out, and only the very best allowed to seed. No trouble was taken with crossing, as the bees are ever busy; and as only the best flowers were allowed to mature we felt sure that the seed produced would be good. The gradual and steady improvement from year to year has been manifest, our young plants now flowering for the first time being very much better than anything previously produced. At the commencement our seed was sown along the foot of a Beech fence, and the seedlings were carefully transplanted at the end of the first summer into the places in which they were intended to remain. The second summer they formed nice little plants, bearing a score of blooms at one time. These were carefully examined, and all the

bad sorts weeded out. The third summer each plant had grown into a large clump, carrying frequently 100 blooms at one time, so that a Primrose thus in flower is indeed a beautiful sight, and where we have many hundreds of such the effect is most lovely. After the third year we break up these clumps, and, by carefully sorting them as they are put to rest in the reserve garden, we have a large stock available for spring bedding in colours. As the young seedlings are always being planted out to fill the places thus vacated by the old plants the borders are always supplied with blooming Primroses at their best. The plants are allowed to cast their seed around, and the seedlings are carefully removed each spring, and planted out, and thus very little trouble is taken when once the stock is in good order.

splendid collection of Primroses and Polyanthus comes from Mr. Neill Fraser, of Rockville, Edinburgh, quite a garden of varied colour, from those of rich, dark crimson with orange centres to the palest lemon colour. Although described as Primroses and Polyanthus, they are in reality different types of the same. We recognise twenty different sorts, sulphur-yellow, deep lemon with orange centre, the palest primrose with yellow centre, reddish-brown with stripes of white, and many others equally beautiful.

Some unknown friend sends a spray of the Fire Bush (*Embothrium coccineum*), the most singular and brilliant of the trees that will endure our climate. It probably came from Cornwall. It is figured in Vol. X. of THE GARDEN, December 1876, pl. LI.

From Mr. Kingsmill comes the Quamash (*Camassia esculenta*). He says it is very hardy in his clay soil to the north of London, and we know it is so in peat and sandy soil at Osborn's and other nurseries round London. It is a good flower for the room, on account of its fine star-like form and the colour, the buds differing completely in this from the flowers, which are a beautiful blue-violet, while the larger buds are shot blue and pink, and the smaller ones a pale bluish-green.

A collection of varieties of the Spanish Squill (*Scilla campanulata*) comes from Messrs. Osborn, showing a gradation of tint from the deepest blue to pure white, and some run off into a decided rosy hue. These are most valuable for the garden, and they never fail to produce an abundant crop of bloom, so desirable for cutting, as their elegant port and soft hues are even more pleasing in subdued light than in the open air. They last for a long time in bloom, the flowers if cut early continuing to open all up the stem.

A glorious bunch of Lily of the Valley from Mr. Hawkins, Twickenham, of a variety which he calls the Victoria; but be the name what it may it is the finest we have seen, and only skilful culture could obtain such fine sprays of bloom and such broad healthy foliage.

A beautiful collection of dwarf Phloxes comes from Farnboro' Grange, grown in an exposed place, where they form patches, many of which are from 1½ ft. to 2 ft. across, completely covered with bloom. These little cushion-like alpine plants, of the American mountains and cool regions, thrive admirably in our climate when not starved on dust-dry rock work, or overcrowded among coarse plants, which are never associated with true alpine or rock plants in a wild state, and which injure them in gardens.

Another set of good plants from Glasnevin shows well the rich resources of that beautiful garden. The most remarkable is a fine North American Violet called *Viola pedunculata*, about the size of our yellow Violet, but of

the brightest orange hue of any we have seen, and the featherings of black in the centre heighten its beauty. Sibthorp's Everlasting Pea comes with it—a handsome plant. It is one of the best of the Everlasting Peas, besides being among the most beautiful of the earlier hardy perennials. *Anemone palmata* is bright and fresh, and for its rich golden hue alone, so different from that of any other Windflower, it is worthy of culture. Another golden bloom is a fine *Trollius* named *dahuricus*, which, however, seems to be a finely-grown *T. europæus*, or, perhaps, a geographical form. It is certainly a fine plant, as, indeed, are all the Globe Flowers. Of three Irises one named *I. italica* has prettily pencilled drooping falls on a pale ground. Some varieties of *Sparaxis grandiflora* grown at the base of an open south wall are finely developed, and afford a hint as to how to grow other Cape bulbous plants in the open air. The Narcissus-flowered Windflower (*Anemone narcissiflora*) is an interesting plant when well grown.

From Exeter comes a collection of American Cowslips (*Dodecatheon*), most usually seen in abundance and well grown in the fine sandy soil in some Edinburgh nurseries. These bright and graceful flowers deserve to be oftener seen than they are, and their culture and arrangement so far understood that they might bloom regularly and without trouble. They are now in their best bloom in the southern counties. They do not grow freely in London gardens as a rule.

A superb collection of Pansies comes from the nurseries of Messrs. Dicksons & Co., Waterloo Place, Edinburgh, who fortunately grow hardy flowers well and extensively, particularly the Pansy in its many forms. Those sent fall into two groups, Pansies and bedding Violets, but they really should not be divided when the Violets assume the large size of the Pansy, which is itself a Violet, or descended from one. We hope to say more of their respective colours next week.

NOTES AND READINGS.

Mr. Worthington G. Smith wants to know, in a contemporary, "who our teachers are," and connects the question with THE GARDEN. Well, most people regard Mr. W. G. S. as one of them. He it was who taught everybody, not so long ago, to employ "Salus" to cure the Potato disease (before he had proved its efficiency himself) and sold it at 1s. per lb. "Salus" turned out on its first trial to be worse than worthless, Mr. Wildsmith and other noted cultivators declaring it made the disease worse than before! That was lesson number one of Mr. Worthington G. Smith's. Number two was the re-discovery of the old Potato "curl" at Chiswick, which he mistook for a new and unheard-of disease, and published the same far and wide till ordinary cultivators put him in the right path, and the "new disease" went the way of "Salus"—it was heard of no more. These are some of Mr. Worthington G. Smith's teaching exploits. Mr. Smith is a scientific gentleman of great attainments, who concerns himself with such important matters as the substitution of a small *b* where he thinks a big one ought to be, and he bases a charge of ignorance against myself on that issue. Well, I find on referring from a smaller to a greater Smith—the editor of the *Quarterly Review*, and editor of the most valuable series of dictionaries ever published in this country—that the word *bos* is printed with a small *b*, and the word *primigenius* without the *i*, and I prefer the authority of the learned editor of the *Quarterly* to Mr. W. G. Smith, the originator of the Potato nostrum that wouldn't sell and deceived those who tried it.

Then I, too, have a rather distinct recollection about a "Beauty of Glazenwood" Rose (the old Fortune's Yellow), superbly striped and about the size of a Cauliflower, and we would like to ask who it was that taught us concerning it, and painted the same

from their imagination, victimising many. Small "b's" indeed! I do not give them for anything else but what they are. Our b's are b's—and we spell "bogus" with one. Is there one kind of science for the trade and another for learned societies?

Turning again to the *bos*, we are informed by Mr. W. G. S. that *B. primigenius* was very rare in ancient British times. Of course it was, because the ancient Britons ate it all up, "and then there were none." As to boars, we are afraid our knowledge of the British *Suidæ* goes a trifle farther back than Mr. Worthington G. Smith's, which begins, apparently, with the British pig or the Berkshire hog, that began to be more common after the Game Laws ceased to protect the wild boar. He says they did not eat the wild boar, which is still eaten, however, wherever it can be got, and which was wild in our country in the most ancient times. But, Mr. Smith, it was not the *bos* nor yet the boar that was under discussion by me in THE GARDEN, but the vagaries of one of your friends and allies, who asserted that English cultivators had destroyed the "natural enemies," in this country, of a beetle that had never inhabited it, and which another scientific authority has declared never can! That even the "scientific" should err is natural enough, and pardonable, too, but scarcely so in the case of those who making such big mistakes as I point out write to other journals using strong words about ignorance, &c., on a question of a big or small *b*, and is even found to be wrong in that.† As to corn growing, Mr. Smith ought to know that it was the Romans who developed Britain "into a corn-growing country." His knowledge of the ancient Britons evidently begins where some people's end. When the Phœnicians swapped skins and vessels of bronze for tin and lead with our ancestors, the latter did not use steam ploughs or study Voelcker.

By all accounts the present spring is likely to be one of the latest on record, a thing which bodes no ill to either the gardener or farmer, provided the summer is favourable. Many years ago an old fruit cultivator informed the writer that during an experience of thirty years he had, as a rule, observed that the most plentiful crops of fruit had always succeeded late springs. When, he stated, the trees are so late as to escape the frosts they are safe, and the crop is almost certain to be a good one. He feared nothing so much as an early spring.

Judging from the girlish ecstasies in which a holiday chronicler indulges over the "pyramids of purity" at Chiswick, we should say a well grown fruit tree of any kind was a novelty and a wonder to him. Moreover, he oversteps the mark considerably in stating that all modes of training have been tried at Chiswick. Not the half of them have been tried, nor have any definite experiments been made with the object of testing the different modes from a utilitarian point of view. They are just as much at sea on such subjects at Chiswick as anywhere else. I do not by any means underrate the doings of the Society's garden, and any gardener would pay a ready tribute to the practical management there, but what has and what has not been accomplished the public know very well indeed. In the article referred to in your contemporary there is, however, one passage which, though it clashes with much that is stated elsewhere, is probably true, and is also instructive:—

A number of Winter Nelis Pears have been growing for years on all sorts of stocks that could be utilised. Whether the trees have been pruned or not the results are the same. Those on the Pear are either barren or sparse of blossom, those on the Quince crowded.

How formally-trained pyramids were reared at Chiswick and elsewhere we are told by the late superintendent there, Mr. Thompson. Beginning with a maiden tree, no matter how strong or how tall, it was cut down to within 6 in. of the ground. After the second year's pruning 1 ft. was added to it; at the end of the third year another foot. At the end of the fourth year it was 3 ft. high, and so on till in about seven or ten years the baby tree was out of long clothes and began to be a tree from which a few fruit might be expected, but not larger root and top together than could be packed away in the crown of one's hat.

† As regards the *i* in the termination of *primigenius*, *Bos primigenius* is right; though the point is a nice one, both forms being in use.—ED.

During all this time were the intelligent market gardeners round the Royal Society's Gardens and elsewhere falling into the ways of the scientific cultivators and trainers of fruit trees? Not one of them. They regarded their fancy productions in pretty much the same light as a master of hounds does a lady's poodle dog, and left them to their nurses. When, however, fruit growers for market were persuaded by other and independent writers to plant dwarf trees with a view to profit and quick returns, they originated a system of their own, and showed gardeners how a tree could be grown as a natural bush or dwarf bush-headed standard that needed only a tithe of the attention the formal tree gets and requires—an idea which never entered into the heads of the Chiswick authorities or any of the strictly formal school, but when they saw it put into shape and practice they understood it and admitted its advantages. Mr. Dancer, of Chiswick, who grows his dwarf trees in the free bush shape, gives them, I believe, no more pruning than is needful to keep them in orderly form, and he has done as much to show what can be done as any one and in an exceedingly short time.

When officious writers grow eloquent on the subject of the Horticultural Society's experiments with dwarf stocks and such like at this date, it cannot but occur to gardening readers that although the different varieties of these have been familiar to French growers for some 200 years, it was only after they were explained fully to the Horticultural Society by outsiders that they decided to try them, and ascertain their value. When the late superintendent of Chiswick published his first and second editions of the "Gardener's Assistant" he had not a word to say concerning the advantages of such things as Paradise stocks and Doucin, &c., and there did not appear to be anybody connected with the Society who could assist him. The Horticultural Society has accomplished something under somewhat adverse circumstances, but when gardeners read the rather silly allusions to the "unproclaimed" and "unostentatious" doings of the Royal Society's experimental garden, it is apt to occur to them that its experiments on the subject of fruit tree stocks, dwarf trees, cordons, &c., have been begun and proclaimed after most people were satisfied of their utility; and the same may be said of Grape and Peach culture, and not a few other important phases of gardening, and that were neither originated nor proved by the Royal Horticultural Society.

PEREGRINE.

THE ROCK GARDEN.

Two very distinct forms of *Erinus alpinus*, namely, *E. a. albus* and *E. a. hirsutus*, are now in flower. *E. a. albus* is considered by some to have claims for specific rank, inasmuch as while possessing the general characters of the type, though less hairy, it never varies in any way when raised from seed, although the two kinds may be grown near each other; this I have proved. *E. a. hirsutus* in a flowering state has a most characteristic decumbent habit, its flowering-stems often elongating quite 18 in. From seed, this kind varies in colour of the flowers sometimes, though they seldom come white. Its trailing habit is, however, constant. The Glacial Pink is the first of its class to open, and its charming pink flowers and neat habit make it very desirable. Some writers would claim for *Astragalus adsurgens* a first place amongst plants of an alpine character. It is decidedly pretty and very distinct, but the fact of a plant being new often unduly influences one's impressions. Let those who would speak so highly of *A. adsurgens* see a few well-grown plants of *A. monspesulanus* overhanging a rock, and I think they would own that it is a formidable rival, or a piece 4 ft. square of the British *A. hypoglottis*. *Androstrephium violaceum* is a North American bulbous plant, with lilac-flowered umbels of waxy-looking flowers. *Myosotis rupicola* is very distinct and a genuine rock plant. It may be grown by hundreds if good drainage and a little peat are given it. With us it does not vary from seed. *Saponaria ocymoides* and its variety *splendens*, with flowers of deeper rose, will shortly gratify lovers of "masses of bloom." The beautiful variety is decidedly an improvement. The annual and better known *S. calabrica* is a pretty plant for covering a dry bare spot. *Anemone Hudsoniana* is a very beautiful rose-flowered form of *A. multifida*, and loves a moist situation, with plenty of peat. *Armeria Lauchiana* is, I think, the best alpine Thrift we have. Its habit, though distinct, somewhat resembles that of *A. alpina*, but it has flowers of a deep, almost brilliant, rose. Many other useful plants might also be mentioned, such as *Veronicas*, *Fritillarias*, and a host of *Saxifrages*, amongst which a cushion, a foot and a half in diameter, of *S. muscoides* var. *atro-purpurea* is most conspicuous.

T. D. HATFIELD.

TREES, SHRUBS, AND WOODLANDS.

THE WILLOW—ITS HISTORY AND USES.

HISTORICALLY considered, the Willow is an object of considerable interest, the allusions to it in Holy Writ being numerous. Pliny mentions eight different sorts of Willows in his time, and speaks of the Willow as one of the most useful of aquatic trees, and, according to Cato, in the days of ancient Rome a crop of Willows was considered next in value to that of the Vineyard. The discoveries of Layard among the ruins of Nimroud prove that twigs of Willow were used at that early date in the manufacture of baskets, and he also speaks of bridges of basket-work sufficiently strong to support animals and men. Baskets made by the ancient Britons were sent to Rome, and there realised high prices. Their huts, boats, shields, and other articles were also constructed of wicker-work, and even so late as the Anglo-Saxon period in Wales

from a warm to a cold situation or *vice versa*, so well as the Willow; it will grow under a tropical sun or in the desolate ice-bound regions of the north, on the barren hill or the fertile plain.

As a Nurse or Shelter to other trees in exposed situations the Willow is one of the best trees known; the lightness and elasticity of its branches enables it to bend to blasts that would uproot the Oak, Ash, Elm, or Pine; whilst for rapidity of growth it is only exceeded by the Poplar. A fringe or border of Willows a few yards wide (if judiciously chosen) would protect many exposed plains now considered too bleak for planting, and nurse into strength trees that could not be reared without such protection. It is also well adapted for planting on the banks of rapid rivers or watercourses; in such situations it flourishes exceedingly, whilst the grasp and tenacity of its long pensive roots keep the banks from being washed away. It might also be used with advantage on many of our railway slopes, and if judiciously done, that is, the kind of Willow adapted to the soil and situation, many



Crack Willows (*Salix fragilis*) at Thatcham, Berks. Sketched by Alfred Parsons, October, 1880.

the chief palace of the king was called the White Palace, from the Osiers of which it was constructed being peeled. Throughout the East, including China, the Willow is extensively used in burial places as an emblem of rest or repose. The greater number of Willows are natives of cold and temperate regions, yet they are spread over a wider range of the earth's surface than any other ligneous plant. Humboldt and Bonpland found Willows in South America near the Equator. Royle discovered several sorts which he describes as indigenous to India both on the mountains and in the plains, while Dr. Richardson, in his appendix to Franklin's first journey, speaks of the *Salix arctica*, *rostrata*, and others as growing on the extreme limit of vegetation. Pursh describes several kinds of Willows indigenous to North America. The Cape of Good Hope and also New Zealand have their native Willows. Willows abound in Siberia. The *Salix divaricata* is found on the Alps of Dauria growing amongst granite rocks. No ligneous plant will stand the extremes of climate, or bear removal

of the dangerous landslips now experienced might be avoided or greatly mitigated.

As an Anti-Fever Tree the Blue Gum was hailed throughout Europe with enthusiasm, and great was the disappointment when it was found that we could not grow it in England, except under conditions that could serve no useful purpose; but we seemed to forget that we had at our own doors in the Willow an anti-fever tree quite equal, if not superior, to the Blue Gum, even admitting the climate to have been favourable to its growth. On the malarious shores of the Levant, from which fevers and agues were never absent, the Swedish consul tells us that by planting Willows extensively the district has been rendered perfectly healthy, and he strongly advises their introduction into Cyprus as an anti-fever tree. No tree in Egypt is more famous than the Calaf Willow, from the blossoms of which medicinal water is distilled. The discovery of salicine, a preparation made from the bark and leaves of Willows, is said to be equal to quinine.

Certain Willows, too, are highly astringent, and may be used both medicinally and for tanning. The excellence of Russia leather is chiefly due to the use of Willow bark.

The Wood of the Willow is light, smooth, soft, and extremely tough. It will bear more hard knocks without splinter or injury than any known wood, hence it is always used for making cricket bats. Whenever it can be obtained, it is used for the floats of paddle steamers and the strouds of water-wheels. It wears longer in water than any other wood; when it can be obtained it is always used as break blocks for railway trucks, and it is the only wood that will stand that kind of concussion and pressure without fracture. Its extreme elasticity and toughness constitute it the best of all materials for the sides and bottoms of carts and barrows where rough work, such as the conveyance of coal or stone, is carried on; and were it obtainable in sufficient quantity, it would be the best material for constructing carriages for passenger traffic on our railways, inasmuch as carriages made of this wood would be less liable to be broken into splinters by collisions than that of other trees. The wood of the Willow burns slowly and is not easily set on fire, a property which ought to be a considerable recommendation where it is necessary to use wood in close proximity to fire. At one time Willow was always used by powder manufacturers for charcoal in preference to other woods, and was only discontinued because the supply fell short. The wood of the Willow is much esteemed by painters for their crayons; cork cutters use it for sharpening their knives on; and turners for polishing other woods when in the lathe; and as cutting boards for shoemakers and others Willow is in demand.

Crack Willow is a name derived from the very peculiar brittleness of the smaller branches of *Salix fragilis*. If a twig is taken hold of at its junction with the stem and sharply bent towards the tree, it will snap off as clean as the stem of a clay pipe would if placed in the same position; if bent outwards it proves tough and elastic, nor does it break at any part except that just indicated. The name is, however, somewhat misleading, because this peculiar brittleness at the junction of twigs with the stem or larger branches is possessed in a more marked degree by another and very distinct species of Willow; but as it is universally known by the name of Crack Willow, that will have to be retained. There are many varieties of Crack Willow, some of which are usually figured as distinct species. But, without entering upon debatable ground, it may answer every purpose to notice such characteristics as will enable any one to recognise it. The variation in the inflorescence of the genus *Salix* is so great that it cannot alone be depended upon in determining species, nor is the rule of naming them from the colour of the branches or the size of the leaf any more to be depended upon; for example, the branches of young trees are darker in colour than that of old trees; the leaves are also larger on young trees than on old ones, being often as much as three or four times as large when set upon vigorous young shoots. The soil and situation also very materially influence the colour of the branches. There are, however, certain well ascertained points of resemblance which are invariable, and under which Willows seem naturally to group themselves. There are but two species of Willow that attain to such proportions as to be entitled to be considered timber trees, and these are so distinctly dissimilar as to be unmistakable. Under the first, or *Salix fragilis*, are included the common Crack Willow, or Stag's-head Osier, *S. decipiens*, *S. cuspidata*, *S. Russelliana*, or Bedford Willow, *S. monspeliensis*, *S. Purshiana*, *S. falcata*, *S. japonica*, *S. petiolaris*, *S. Micheliana*, and probably twenty others, for varieties are always being discovered. We have seen that there is great variation in the size of the leaves under different conditions. The form, however, is always the same; malformed leaves may be found on any tree, but the variation in form between one variety and another is seldom greater than can usually be found upon one tree, and never sufficient to mislead a practised eye. The characters of the Crack Willow are as follows: Leaves lanceolate, but more longly acuminate at the apex than at the base, very regularly serrate at the edges, glabrous on both sides, and when spread on paper the leaf is mostly curved or scimitar-shaped with the apex slightly recurved; footstalks from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long with small gland; catkins opening shortly after the leaf has expanded, very long and thin, often from 3 in. to 4 in. long, and sparse in both flower and fruit; the bark rougher, thicker, and more deeply scored than that of any other Willow; the bark or peelings on the smaller twigs

very bitter, and by this alone the Crack Willow may be known, for no other tree Willow contains the bitter property known as salicine. The *Salix alba* hardly contains a trace of salicine, notwithstanding statements to the contrary. The Crack Willow is a very rapid grower, especially when planted closely and in masses. A specimen of this tree now at Basford, Notts, ten years old, is 3 ft. 2 in. in girth at 3 ft. from the ground, and is over 30 ft. high. There is a very beautiful pendulous variety of this tree grown extensively on the Rhine; there are not many below Bonn, but from there to Heidelberg and upwards, to the fall of the Rhine, many Crack Willows may be found. It is there falsely called *Salix babylonica*. The latter is a variety of *Salix alba* and very distinctly dissimilar. But this variety of *Salix fragilis* only wants knowing to make it a general favourite. The habit is less drooping than that of *babylonica*; indeed, it might almost be called semi-pendulous; the foliage is also darker and more dense. It does not attain the same height, but covers a much larger space than *babylonica*, and would, if introduced, be a welcome addition to our ornamental gardens. There is also a variety of this tree with brilliant orange branches tipped when young with red, but as it increases in size and age the colours become paler, but even then it forms a charming contrast to the usual sombre-looking forest trees, and deserves much greater attention from planters than it now receives, not only on account of its cheerful appearance, but also because no hard-wooded tree will yield such a large return for the outlay expended on it.

Basford, Notts.

W. SCALING.

[The specimens represented in our engraving grow in an alluvial, gravelly soil. They are about 75 ft. in height; one has a girth of 10 ft. 6 in., the other 12 ft. 10 in. at 4 ft. from the ground. Diameter of branches about 80 ft.]

SHEARLAND—A SUBURBAN SKETCH.

WHERE does it lie? Well, it is essentially English in its peculiarities, and may be included within a twenty-mile radius of London. It may be characterised as the locality in which the shears *par excellence* holds sway. One cannot mistake Shearland; its hedges are not the hedges one recollects as a boy in some far-away shire, where we found our first bird's nest. Those were full of pretty wild plants at nearly all times of the year, and overrun here and there with Traveller's Joy and Sweet Brier; they also contained great bunches of pink and white May and Crab blossoms, while those of Shearland are living walls, intended evidently to shut one out, and consisting mostly of Holly, Thorn, and Laurel, cut sharp and severe. One can see as much of what is behind them as the curious people could of the garden around the castle of the Sleeping Beauty. Hedges hereabouts form veritable fortresses; they rise one above the other terrace-wise. The lodges seen here and there at intervals along these green walls afford the only inlet to the gardens of the dwellers in Shearland. These buildings are as neat and incommensurate as it is possible for an architect versed in such work to make them, and in all possible styles—ancient and modern—and of nearly all sorts of materials. When one has obtained access, the walks are found to be unnaturally clean and smooth; not a ghost of a weed to be seen on them. "How do you keep all this gravel road so immaculately clean?" is a question one is naturally led to ask. "Oh, we rake it and roll directly any wheels have passed over it, and we brush it with a hair broom!"—"And the Grass; I see you use a machine which collects, too, but it looks too trim, less like turf than green plush."—"Yes, we do not allow even a blade of Grass to rest on it, so much are we subservient to that tyrant called tidiness."—"What may be those rounded evergreens skirting at regular distances a terrace walk?"—"Oh, they are common Laurel and *Arbutus Unedo*; they take a good deal of cutting in and tying to keep them as you see them, and still they are continually dying off." One is hereby reminded of the Japanese torturers of things horticultural.

The lawns, too, in Shearland are formal; no knoll or gentle wavy undulation, and if an elevation is adopted it is always by means of a terrace, and has a sharply defined slope. In fact, the terrace is quite the fashion.

A townsman, seeing the pyramidal forms dotted about the lawns indiscriminately, might be led to think that some of the city churches had been robbed of their steeples, and that these painted green had been sent to Shearland to ornament the garden. Everybody else seems to feel intuitively that the Spruces and Firs, large and small, look better grouped than dotted, and that they require to be associated with trees and shrubs different in leaf, form, and habit from the Conifers. The Shearlanders have also a dim sense of this matter of opposites; but instead of seizing on subjects which

Nature apparently has created for their particular purpose, they catch an unlucky evergreen shrub, and, without mercy, with their shears give it the desired round form which contrasts so nicely with the steeples; and thus throughout the grounds one sees three forms only; the flat observable in the Laurel, Holly, Rhododendron, Heaths, and Ivy, the pyramidal in the Firs, and the globular in the sheared evergreens. No break, no naturalness, no pretty, undefined margin running in and out, and losing itself without effort or apparent device; no flowering graceful shrub, unless it be a Thorn marred by having its stem set up with a plumb line. Even creepers, which above all things have a happy way of getting out of control and looking all the better for it, are kept close to the walls. Trained when young in the way they should go, they do not depart from it.

That the inevitable ground painting, or carpet bedding, is in full sway in Shearland will be no matter for surprise, and where flowers are admitted into the embellishment of the garden, the red, orange, and blue arrangement meets with universal favour. Primulas (many sorts), bulbs, Violas, Wallflowers, Arabis, and Aubrietias were all planted in one thin line, quite straight on the grass, by the side of a walk. Therefore, ye denouncers of formalism, stay not your hands till better work has been done even in Shearland.

SYLVESTRIS.

THE COTTAGE PORCH.

ZENO taught philosophy in the porch at Athens, and, indeed, there are many porches and shelters of interest and fame; but mine is not the porch of history. History records great things, and mine is but the porch of simplicity—the cottage porch, round which, as I now write, the sparrows chirrup the melody of morning. Its attractions are more than I could tell, or care to tell; there is peace round about it, and there is, at times, philosophy—not of Athenian depth, but of a homely quality, dealing more with questions of the heart than with speculations of the mind. But it is not my purpose to dwell upon these just now. It is my desire to speak of the adornments of the porch rather than its emotional associations. "How bright and cheerful those flowers are about your door! What is the name of the plant that produces them?" "Cydonia japonica," I replied. I observed that my friend was not much benefited by the information, and my conviction was confirmed when, later in the evening, "a spray of that pretty red flower" was asked for. This plant, which has still to become endeared to us by an English name, is nevertheless worth careful inspection. All plants are especially beautiful and interesting in early spring; the delicacy of the opening foliage is so remarkably attractive. In the Cydonia this is a specially pronounced feature. The concealment of individual form in the yet unbudged bud is of the most captivating suggestiveness, and its first expansion reveals a combination of attractions more easily discerned than described. The flower itself has all the pleasing characters of the Rose family, to which the Cydonia belongs—petals of rosy warmth surrounding stamens, laden with golden dust—pollen grains, we must say, to be accurate, and for form in bud and expanded bloom it has the charm of simplicity.

Leaving the sober shade of the Cotoneaster and the cheerful warmth of the Cydonia, still another member of the family of the Rose just now lends the grace of its comely simplicity to the cottage porch, viz., the Plum; considered now for its floral worth, for freshness and purity of its whiteness, the Plum is not to be despised, but should be encouraged, regarded as a source from whence we may expect not only the loveliness of spring, but the harvest of autumn.

In proximity to these I detect the aroma of the modest Violet, and find it carpeting the border and filling the atmosphere with the powerful, if silent, assertion of its presence. And there is the old-fashioned, but ever welcome Ribes sanguineum, the flowering Currant of the cottage flower garden. It is a deservedly universal favourite. Its early bloom, conspicuously hanging in pendulous racemes, its peculiar fragrance, its perennial freshness, and its curious little hairy fruit insure for it a perpetual regard, and no cottage garden should be without it. It is one of the charms of the country nosegay, which may lack, perhaps, the showy delicacy of the professional bouquet, but it is abundant and substantial, a very blaze of colour, redolent with Lavender and Sweet Brier, and garnished with Box or Bracken, according to the supply of the material and condition of the season.

There is more in promise than there is in possession, for the spring is late, and plants and trees are bursting only into first

leafage. I note the Wistaria, the Honeysuckle, and other occupants surrounding the cottage porch, and these shall receive their recognition as the days brighten—when they have in their turn unpacked their *trousseau*, and have assumed the vestments which Nature is now busy weaving for them.

Chester.

E. J. B.

THE ROSE GARDEN.

ROSES AT NICE.

A TRIP just now to the Rose gardens of the south of France is of very great interest to the Rosarian, though it is in some degree disappointing, from the fact that Roses are grown there not for their fine form or colour, but solely for their winter-flowering capacities. It is quite surprising to find how capricious Roses are in this respect, and, in consequence, many of our chief favourites are excluded from these winter Rose gardens. Fancy a Rose garden from which La France, Marie Baumann, and Chas. Lefebvre are excluded! Yet such is the case here; and what is stranger still, their absence is scarcely missed amid the abundant beauty of many varieties that do not show themselves to advantage in the English climate. The beauty of many Noisette and Tea Roses cannot be imagined by any one who has not visited these sunny shores in spring—a beauty so great as almost to justify the laudatory epithets bestowed on them by their raisers, but which, alas, proves evanescent when transplanted to northern climes. An arcade of Cloth of Gold Roses at this season is a thing of beauty that must be a joy for ever in memory, but, try as you may, how rarely does it show its true beauty in England. When, therefore, one sees new Roses of extraordinary beauty in this climate, it must always be a question if they will do well with us; and any new Roses that promise well for standing wind and rain will be doubly welcome.

Of Roses new to me, though sent out a year or two ago, special mention must be made of Isabelle Nabonnand, a Rose of the largest size, and of vigorous growth and foliage. Its colour is pink, deepening with age under a hot sun, so as to give a very varied effect. Another Rose, less large in bloom and less perfect in shape when half opened, must still be mentioned, as its bright rose-crimson colour and stiff, vigorous habit make it most desirable for a garden Rose. Prince Wasilitchikoff makes both Cheshunt Hybrid and Reine Marie Henriette turn pale and dull in colour, while its growth recalls Gloire de Dijon in abundance of bloom and sturdiness of wood. Comtesse Riza du Parc, a Rose better known in England, I fancy, than the two preceding ones, is strikingly charming here, from its abundance of very bright salmon-rose blooms and bright green leaves, which, with its persistent habit of flowering, are making it a great favourite. It surely would be worth trying in the Rose garden.

Among Roses of smaller growth there is only one that I have come across that seemed so distinct as to merit special remark, and that is called La Lune. It is of the largest size, and its pale lemon flowers and waxy consistency of petal quite give an excuse for its being called not mere moonshine, but the real article itself. In its own way this seems a decided advance on older varieties should it succeed at home.

E. H. WOODALL.

ROSE CUTTINGS.

It would appear from the remarks of "Tynedale" and Mr. J. Knight in a recent number of THE GARDEN, as well as from the widely varying degrees of success or failure in the rooting of Rose cuttings, that the subject is far from being thoroughly understood. My own experience points to the conclusion that the sure and rapid propagation of Roses by cuttings is neither so easy nor so difficult as many imagine. Still, the Rose secret, of which we heard a good deal some years ago, and which purported to be a short cut to the multiplication of Roses by the million, is still a secret so far as I am aware. Mr. Knight has come pretty near to finding it out if he can "root Roses all through the summer just as easily as Pelargoniums and hosts of other things." Little more can be desired, for all that is needful to root Pelargoniums is simply to cut off a bit two joints long, thrust one joint into the ground, and leave the other in the open air in sun or shade, and the cutting becomes a plant without more ado. Mr. Knight cannot mean that Roses will root just so, and I trust he will inform us how "Roses can be rooted

all through the summer just as easily as *Pelargoniums*." Mean while it may prove useful to offer a few remarks on the character of Rose cuttings and the time and place of their insertion. These three—character, time, and place—constitute a sort of trinity of sequences that command success or invite failure. The character of Rose cuttings varies almost as much as the species and varieties even of Rose. Nearly every sort has its rooting capacity as well as its own beauty and fragrance. As an illustration of my meaning I would cite *La France* as a free, *Mabel Morrison* as a shy-rooting Rose, and there are infinite gradations of free rooting or sluggish rooting Roses between these two extremes. But without entering into what may be called the individual rooting idiosyncrasies of Roses, it may suffice here and now to name two classes of Rose cuttings—those at rest and those in active growth. The confounding of these two together has caused Mr. Knight, and probably others, to misunderstand my condemnation of February as the worst possible month for the insertion of Rose cuttings. Canon Hole and his friend evidently referred to dormant Rose cuttings; Mr. Knight refers to growing ones; hence his difference with me on the subject. This incident shows the importance of the classification of Rose cuttings into the two classes here assigned to them.

Dormant Rose Cuttings could not, I repeat, be inserted at a season more likely to invite failure than February. Growing Roses, notably *Teas*, under glass, especially if they have finished flowering, could hardly be inserted at a better time to command success. In fact, there is really no difference whatever between Mr. Knight and myself so far, because we are referring to Rose cuttings of totally distinct characters. Those in a state of growth also vary considerably in character. For example, the growth may be made under glass or in the open air, and these accidental circumstances will exert a determining influence on the time and place of insertion. The fact is, growing Rose cuttings must be inserted by condition more than by time. Immediately after flowering, when the wood is about three-quarters ripe, hits the condition most favourable to the emission of roots. Before that stage the cutting is too succulent; after it the wood becomes too hard. Experience teaches the happy mean between these two states, when roots seem to leap forth at the bidding of skill and genial conditions. These words bring us to the best places for rooting Rose cuttings. For all cuttings in a growing state inserted from February to May inclusive, a close frame and a bottom heat of from 60° to 70° is the best place. The plants have been grown under glass, and so inured to heat, and it is best for the cuttings to be subjected to as much, or more, heat than the plants. This quickens their fluids, and causes a more rapid deposit of cambium around the base of the cutting. This once secured, roots follow as a matter of course.

It is also a singular, and a cheering, fact for the propagator that Rose cuttings from plants grown under glass not only root sooner, but generally also faster than those grown in the open air. This is almost as true of Hybrid Perpetuals and other Roses as of *Teas* or Bourbons; hence I would strongly advocate the insertion of as many cuttings as possible from forced Roses, and all those grown under glass. Insert them at any time when they reach the proper state, and surround them with proper conditions, and they are sure to grow. Another point affecting the character of the cuttings deserves careful consideration. Avoid all strong and gross shoots as much as possible. These do not root so freely as the smaller and moderate-sized side shoots. Take the latter off with a heel, and leave two or three eyes above it. If a sufficiency of these heeled cuttings can be obtained never trouble to insert any of the top part of the shoots; the latter may root, the former must; and generally a sufficiency of heeled cuttings may be obtained without troubling about the heelless ones.

Growing Rose Cuttings may be inserted from the open air from June to October. About the end of June up to the middle of July is perhaps the best time. The character of the cuttings should be as near as may be identical the same as those selected from under glass, but the place of rooting and its conditions should be somewhat different. All violent changes of treatment must be avoided. The damp earth should be as much like the Rose tree to the cutting as may be. Careful shading from the sun will preserve the leaves fresh and green during the process of rooting, to which they largely contribute. Frequent overhead sprinkling should furnish them with food, or at least prevent that which they contain from being wasted. Success in

rooting Rose cuttings in a state of growth mostly turns on the preservation of the leaves in an active state. Every leaf should be preserved unharmed during the making of roots, or until the perfect rooting of the cutting if possible. For this, and also for other reasons, a close frame without bottom-heat is the best place for callusing Rose cuttings from the open air from June to October. After callusing, which will mostly be accomplished in a fortnight or three weeks, the cuttings may be subjected to a bottom-heat of from 60° to 70° with manifest advantage.

There is yet another method of rooting Rose cuttings from the open air in a state of growth. This consists in heeling off the delicate buds when 1 in. or so in length, at any season when they can be had in that state, and inserting them in pure sand, over several inches of drainage, covering with bell-glasses, and plunging in a bottom-heat of from 70° to 80°. With careful treatment, as regards shading from the sun, damp, and excess of heat, Roses can be rooted quickly in this way. There is, however, more risk of failure, owing to the exceeding delicacy and tenderness of the cuttings, and this third method of rooting Rose cuttings in active growth had better be left to the more skilful cultivators. I have nothing to add to what has already been said about the propagation of Roses from cuttings of the dormant shoots in the autumn. I still consider October and November the two best months for their insertion, either in the open air or in cold frames; a cool régime till they callus is indispensable. They may then be forced to form roots in any temperature from 55° to 65° with safety. They will also succeed if left wholly in the open air, and some sorts of Roses will root tolerably well if placed on a shady border in a growing state in June or July. But as they do not root with such rapidity nor certainty as by the methods here recommended, it is not wise to recommend risky modes of propagation, while others, almost equally simple and infinitely more sure to succeed, are within reach of all who have a common frame, handlight, or cloche at their command.

D. T. FISH.

The Best Rose of the Past Two Seasons.—On all hands it must be allowed that the place of honour has been fairly won by A. K. Williams, a superb show flower of the lovely imbricated type of *Mdlle. Marie Rady*. In fact, already it has obtained a position beside that of the matchless *Marie Baumann*, completing the quartette of the best Roses in cultivation, which seem to be *Maréchal Niel*, *La France*, *Marie Baumann*, and A. K. Williams. Of English-raised Roses the palm must be awarded to the beautiful *Duke of Teck*, which attains, when grown in shade, a vivid scarlet colour unequalled by any other Rose; and *Glory of Chesham* seems, for garden purposes, to be first-class, being possessed of a most vigorous constitution, and rich tints. Yet the only competitor A. K. Williams may possibly fear at present seems to be *Margottin's Gloire de Bourg-la-Reine*, awarded first prize as a seedling in 1878, and which has, I believe, turned out first-class. In colour it is a glowing scarlet, and is stated to attain a large size, which is unlike the habit of *Duke of Teck*, which is a somewhat smallish flower, at least with me. I cannot help mentioning *Lacharme's lovely Jules Finger*, an exquisite little gem, pure white, centre maiden blush, and of perfect form. But, in my opinion, all these must take rank after the truly superb A. K. Williams, it being perhaps the finest Rose, on all points, introduced of recent years since *Marie Baumann*. In the Tea selection the honours seem to be divided by *Innocenti Pirola* and *Madame Lambard*, both first-rate.—GEORGE CHAS. GARNETT, *Donnybrook*.

—I saw A. K. Williams well grown and shown in two of the Rose shows at which I assisted to adjudge the prizes last year, Norwich and Diss, and in both cases it was the best Rose exhibited.—E. W. DOWELL, *Dunton Vicarage, Eakenham, Norfolk*.

Safrano in Bud.—This is not only the earliest, but one of the most charming of all Roses in bud. Its colour is peculiar, varying from a sort of brown outside to a delicate yellow in the inner petals. The bud is also small, delicate, long, consequently graceful. Of course the Rose lacks substance, and when it opens, which it does quickly, it is little better than a semi-double. Still, it is a beautiful and valuable Rose; in foliage, too, it is almost equal to flowers to mix with other Roses, being of a deep, ruddy purple colour. For early spring and late autumn blooming, we have few Roses more valuable than the *Safrano*. By a peculiar association of ideas *Safrano* reminds one of *Céline Forestier*, a yet more valuable Rose; in fact, the latter may be called two Roses, the large buds and open flowers being so different from the small or secondary buds in a condition of half developed Roses. It is these last, though differing so

widely in quality and colour, that suggest Safrano to my mind. These small Céline Forestiers are, however, far more valuable for bouquets and other purposes than the Safrano, as they have greater substance and staying power. By the way, has any one tried forcing Céline Forestier early, and with what results?—D. T. FISH.

THE FLOWER GARDEN.

SEEDLING PETUNIAS.

PETUNIAS are grown more or less in most gardens, but as a rule the seed is sown too late to get the plants strong enough for turning out by the middle of May. Although the seeds germinate more readily in frames with bottom-heat, such treatment is not necessary, and if sown at once in pans and placed on a shelf in any warm house, it



Dwarf strain of Petunias.

will be found that any so raised will not only be considerably in advance of those put in at the usual time, but that the plants will be short-jointed and altogether more stocky and strong. To get such fine seed to do well, it is important that the soil should be made perfectly smooth and level, and when this is done, watered through a fine-rosed pot, so as to avoid having to wet the earth afterwards,



Tall-growing Petunias.

till the young plants make their appearance. By adopting this course and covering the pot or pan with a piece of glass, so as to maintain an equable temperature and prevent evaporation, success will be certain. Even the most minute seed may be induced to germinate in this way, but in all cases where it is so small that it has to be sown on the surface it should have a sheet of paper laid over it to shut out the light for the first few days, after which it will require close

watching, and must be uncovered immediately germination takes place. To encourage growth when up the young plants should be placed in a close frame or pit up near the glass, when they will soon be ready for pricking off into boxes of light soil or for potting singly, to be shifted again or planted out as required. Besides being serviceable for bedding, Petunias raised from seed are valuable for pot culture, as they afford plenty of variety both in form and colour, and make a fine display in a greenhouse or conservatory, either in pots or baskets.

In borders, the best way to grow them, or rather to support them, is to get a very coarse piece of rabbit wire and cut it into lengths of from 2 ft. to 3 ft., and place one of these pieces round each plant, so as to form a guard, when after a time the branches will find their way through the meshes and hide the wire with foliage and flowers. Grown thus, they make grand masses that are not blown about or stiff or formal in appearance. Some years ago the double varieties of Petunias made a great stir, and very beautiful they are, especially such as we see now, many of which are fimbriated and striped after the manner of Carnations. The best way for growing Petunias when wanted for greenhouse decoration is to plunge them in cold frames where they can have full sun, and after the middle of May to draw the lights off during the greater part of the day. By pinching back or beheading any that have been under glass and exhausted by flowering, and then setting them out in the open air they will soon break again and come into bloom in the autumn, or a succession may be kept up by nipping out the points of the young shoots of a portion of the stock and then growing them on. Double kinds admit of being raised from seed in the same manner as the single sorts, but seeds should be from a good strain. J. S.

DAFFODILS AT BROCKHURST.

THE late spring and the dry and sunless April which we have had have favoured the Daffodils. In a hot, wet spring they "haste away so soon" that we have not the opportunity of comparing the various sorts as they flower in succession, but this year all have been in bloom together, and have been with us fully a month in great luxuriance and beauty. I have never seen it noted in any illustrated botany—not even in Burbidge's monograph on the *Narcissi*—that of the wild form of the common Daffodil there are two distinct varieties, which we find so marked throughout the whole series, viz., those having the petals and tube of one colour (deep yellow), and the other having the petals pale and the tube of deep yellow—in fact, "bicolor." It is easy to see how all the varieties, culminating in the Emperor in the one and Empress and Horsfieldi in the other, have arisen from these; but I think it is not generally known. Having collected bulbs of the wild Daffodils from all parts of England, and grown them together in the wild garden here, this peculiarity is very noticeable. We have the wild Daffodil plentifully in the meadows within a mile of this place, and all are bicolor; whereas about eight miles further up the valley the wild Daffodils are self coloured—deep yellow.

Of the deep yellow Daffodils the grandest flower is the Emperor; but I think it is not nearly so fine in colour or so beautiful in form as the Tenby Daffodil sent to me by my friend the Rev. C. Wolley Dod, which has a shorter tube, stiffer and more reflexed petals, and a deep, rich yellow colour, which makes it remarkable above all the rest. Mr. Leeds, of Longford, had a very fine variety called Major superbus, which is not in Messrs. Barr & Sugden's list. It has a narrower tube than Emperor, but in other respects similar; we have had it in very fine flower here. Of the bicolors, I consider our Lancashire N. Horsfieldi very much finer than the Empress. It is a larger flower, has finer foliage, and is better in every way. This grand Daffodil was raised by a weaver at Prestwich, near Manchester, some fifty years ago, and I am told that when it was sent out he just received £2 10s. for it. So much, however, was it esteemed that the weavers about Prestwich had shows every year of this Daffodil; and Mr. Percival, the present president of our botanists' society, recollects having been present at such a show where a copper kettle went to the winner. The flower thus cultivated attained a grand size and form, just as the big Gooseberries do when carefully tended. This Daffodil abounds in the neighbourhood of Manchester, having all come from the old stock. We have as many as thousands here in bloom at one time, and when thus grown in large clumps it is indeed a grand flower. Mr. Leeds also raised a very fine Daffodil of this type (*N. bicolor maximus*). This likewise appears to have escaped Mr. Barr. It is a

very distinct flower for either Empress or Horsfieldi, having a very narrow tube of deep yellow, with very stiffly reflexed and short petals, giving the flower what may be termed a jaunty air. I think it quite a distinct and very valuable variety. Horsfieldi comes into bloom a full fortnight before its parent bicolor, whilst Leeds' variety (*bicolor maximus*) flowers at the same time as bicolor.

Of the *Narcissi* group I have not had a long acquaintance, but nothing can exceed the simple beauty of Leeds' varieties of *N. incomparabilis*. On a sloping bank here we have had over a thousand bulbs in flower at one time, being all from the trial grounds of Mr. Leeds' old garden, and showing every variety of colour, from white to orange. Mr. Leeds crossed the old *incomparabilis* with *N. poeticus*, and thus got the rich, red edging of the tube into that of the new varieties. Some of these are exceedingly beautiful.

WM. BROCKBANK.

Brockhurst, Didsbury.

SEEDLING PANSIES FOR SPRING BEDS.

OF the many different sorts of plants used for bedding or for planting in mixed borders, I consider the Pansy to be one of the most useful. Being of easy cultivation, every one who has a garden or border can grow it, and a shilling's-worth of seed will give a variety of striking colours. I sow the first week in May, or as early in that month as I can, in pans or boxes, using some light, fibry soil, with which I mix a little leaf-mould or rotten manure to keep the compost open and thus induce the young seedlings to root freely. I keep them in a cold frame until they are large enough to prick off into a piece of ground which has been well prepared for them. I plant them from 3 in. to 4 in apart and water them well to settle the soil round their roots. If not convenient to sow the seeds in pans or boxes, sow them on a small piece of ground prepared for them by digging in some light manure to give the seedlings a good start. After raking the surface fine, sow either broadcast or in shallow drills, and cover lightly with finely sifted soil. When large enough to handle, prick the young plants out into a piece of ground prepared in the same way as for the seed. Sometimes during the summer they will be sufficiently large enough to transplant, and in autumn they will all be in flower, so that the best can be selected for the flower garden, in which they should be planted as soon as the summer-bedding plants are cleared off; this will give the Pansies an opportunity of rooting well before winter sets in, for if not established before the frost comes, the plants often die or are unsatisfactory during spring, when we expect to have our beds gay with their various colours.

Any plant required for the mixed border should be planted in the autumn if possible, for when left until spring they seldom give the same satisfaction as if planted early; they require some time to get well established; very often drying winds set in in spring, and if the plants are not carefully watered when planted, they bloom but sparingly, and the blooms are small. Seedlings generally commence to bloom in September and October, and, if growing freely, yield a fine crop of flowers even before first sets in, and again more fully in spring. Some beds here planted with seedling Pansies are very effective, and they make a fine contrast with other spring-flowering plants. We have several hundreds in mixed borders and they give them a fine appearance. When purchasing seed, get a mixed packet of show and fancy varieties, which will produce an endless variety of colour among both sorts. When lifting the plants in spring from the beds, save the best sorts to plant with the seedlings next autumn, or to plant in the mixed border for permanent plants for summer growing.

The Rookery, Bromley Common.

WM. CHRISTISON.

Florists' Flowers.—It cannot be denied that the taste for strictly florists' flowers, which once so widely existed, is now fast dying out. The Auricula, the Polyanthus, and the Carnation are now, perhaps, the most prominent ones; and, as far as the south is concerned, what prominence they have is, perhaps, more due to the untiring energy and enthusiasm of Mr. Dodwell than to any one else. The great mass of horticulturists have nothing in common with the old school of florists; they have done their work, and did it well. We have seen how they brought the Dahlia, Hollyhock, Gladiolus, Carnation, Tulip, Auricula, Pelargonium, and other flowers up to a point of excellence that seems to admit of no advance simply as florists' flowers. But, beautiful as these are, the public have gone far beyond them in taste, and find, perhaps, more pleasure, and certainly not less beauty, in myriads of other things. These flowers are not grown now as florists' flowers, excepting by the few who get hold of or

are entranced by the florist's creed. It is, however, unfair to florists to deride the importance which they attach to points, because if flowers are to have special merits of any kind, these merits can only be judged of by points. Even the Rose, the most beautiful of all garden flowers, and yet one least tied up by florists' rules, is not to be judged other than by points of some kind, for if there were none Rose judging would be chaos. In all matters where men combine for the promotion of art, points must constitute the basis of judgment, and in setting up certain points or rules, or standards of judging, the florists have but done that which was absolutely inevitable. To them points are essential to beauty, but to the 999 who love flowers outside the florists' world, points are unappreciable, because the highest beauty is found by them in flowers that are rather as Nature made them than as man has improved them.—A. D.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Varieties of Freesia.—Having grown *Freesia Leichtlini* since its re-introduction some five years ago and *F. refracta alba* for the last two seasons, and having bloomed both abundantly and carefully observed and compared them, I can assure "Z. B." (p. 466) that these plants are altogether distinct and different the one from the other; the first-named is later in coming into bloom than the other, and the flower tube is much shorter and by no means so erect; the colour also is invariably a clear primrose-yellow, with usually two deep golden blotches on the mouth of the throat, though one of these is sometimes absent. *F. refracta alba* with me is hardly ever marked with these golden blotches, only one or two of my flowers having them this season. *F. Leichtlini* is also deliciously and delicately perfumed, exhaling the concentrated aroma of the Cowslip, whereas *F. refracta alba* has little or no perfume. I have never before heard of *F. refracta*. I must also beg to differ from "Z. B." in thinking that the number of distinct varieties of this family is now reduced to almost two, as I grow a third, received from Messrs. E. G. Henderson, under the name of *F. aurea*, which is quite distinct from, and I think inferior in beauty to, either of the others; it is much later in coming into bloom, and is only now showing its flower-spike; the flower is smaller than that of either of the others, quite different in shape, and is of a clear canary colour. I am having a group painted of these three varieties by an artist friend, which I shall be happy to send to "Z. B." when finished to look at, if he will send me his name and address through the editor of THE GARDEN.—W. E. G.

***Freesia refracta alba*.**—Your illustration of this plant (p. 465) is a very truthful one, the exceedingly long tubular-shaped flowers at once marking the great difference that exists between it and *F. refracta*, which is said to be the type, and *F. refracta alba*, its variety. I am, however, inclined to think that *F. refracta* and *F. Leichtlini* are more closely allied, and that *F. refracta alba* is distinct from both. We have grown the three for six years, the correctness of our nomenclature being vouched for by Mr. Baker, to whom specimens were sent. *F. Leichtlini* is a pale primrose-yellow, the three lower segments of the flower having a slight marking of orange-yellow. *F. refracta* is a trifle larger in flower than *F. Leichtlini*, of a brighter yellow, and has larger and deeper coloured blotches of orange-yellow. *F. refracta alba* is pure white, with just a slight blotch of light orange on one or two of the lower segments of the flower. We exhibited *F. Leichtlini* at the Royal Botanic Society's show on April 21, 1875, when it was certificated; we also exhibited *F. refracta alba* at South Kensington on July 2, 1878, when it received a first-class certificate.—FRED. HORSMAN, *Colchester*.

The Lily of the Valley of Scripture.—According to the best authorities, this was the purple Iris, the "*Fleur de Lys*," a plant ever considered sacred to the Virgin Mary. Most amongst us, however, from childhood have erroneously associated the Bible reference to the flower that "*toileth not and spinneth not*" with the *Convallaria majalis*, our Lily of the Valley or May Lily, one of the most fragrant and characteristic of the flowers of the month, but, which indeed is rather an alpine than a valley plant, naturally growing under the shade of the woods which clothe the flanks of the great mountains. The early tradition attached to the purple Iris has been transferred in this country to this, our Lily of the Valley, whose flowers are said to be "*Virgin's Tears*."—WALTER ROBINSON, 5, *Chester Square, S.W.*

Testing the Doubleness of Stocks.—We confess to a partiality for a good bold single Stock—the horror of the grower generally, who loves his double spikes, and will not fail to appreciate any way of determining in early life whether the little plants are to produce double flowers or not. If a great number of seedlings are raised, the grower who wishes double flowers is naturally anxious in

the early stage to determine which are going to be double, in order that he may give them his best attention and throw away the rest. Well, when the seedlings are very small they form a little woolly green bud in the centre. If one of these be pinched from the very heart of the young rising plant and found, when placed between the teeth, to have a texture like a bit of dough, it is from a plant with double flowers. If, on the other hand, the teeth cut sharp through it, having met with some resistance, it indicates single flowers. Some hundred plants singled out in very early life on this principle we saw in flower the other day, and there was but one single kind among them.—*Field*.

The Fruiting Duckweed (*Nertera depressa*).—In THE GARDEN (p. 445) this plant is referred to as a native of New Zealand and Tasmania. Not having met with it during my visits to those regions, I should be glad if you could inform me when it was there discovered, and by whom introduced thence into England. I am the more desirous of this information because Lindley in his "Natural System of Botany" speaks of the *Nertera depressa* as the most southern species of the Cinchonaceæ, and as inhabiting the Straits of Magellan.—S. AINSWORTH, *Rutland Road, South Hackney*. [In Hooker's "Handbook of the New Zealand Flora," *Nertera depressa* is stated to be found in the Middle Island, Southern Island, Lord Auckland's Group; also in Tasmania, Tristan d'Acunha, and the Andes of South America, from Mexico to Fuegia.]

Gentiana acaulis.—What a lovely flower has this Gentian when seen in thoroughly established masses! a few blooms on recently transplanted patches convey no adequate idea of its beauty. It likes a very firm surface soil, and flowers best in a moderately open position. We have some clumps of it well established round specimen Coniferæ, and while it is a blaze of bloom on the southern side there is hardly one on the north or shaded portion. It makes an excellent carpet plant under choice shrubs that are planted thinly, such as Camellias, Azaleas, Kalmias, and the like. It also makes a good edging plant, as it is quite evergreen and looks cheerful at all times of the year.—JAMES GROOM.

Erysimum pulchellum, sent out this season by Messrs. Rodger, McClelland & Co., of Newry, is a welcome addition to our spring flowers suitable for bedding purposes. It has a dwarf habit, and is thickly covered with citron-yellow flowers, which remain very constant. It associates very well with the Aubrietias, Iberises, Arabis, and other Cruciferæ, and thus fills a gap which has long been vacant for a yellow flower.—BROCKHURST, *Didsbury*.

Eutoca viscida.—The Californian *Eutocas*, numbering about four species, are extremely pretty annuals, amongst which *E. viscida* is the best known and the handsomest. It grows about 1 ft. high, and has erect branches furnished with coarsely toothed leaves. The flowers, which are produced on singularly



Eutoca viscida.

curling racemes, are a deep blue, flushed in the centre with violet, and are produced from July to September. The plant thrives best in sandy loam. Like all other hardy annuals, it is best sown early in the season under glass or even in the preceding autumn. The other kinds are *E. divaricata*, *E. Menziesii*, and *E. Wrangeliana*.—W. G.

Gaillardia picta.—The genus *Gaillardia* is well known to include some of our most popular border plants, equally valuable from their long blooming properties, as dwarf bedders, or for fur-

nishing cut flowers. *G. picta* is one of the most distinct of the older species; it is a plant of the easiest culture and a most abundant bloomer. It grows to the height of 2½ ft., but commences flowering when little more than 1 ft. high, each plant forming a dense bush, above which the flower-heads are elevated on rather long foot-stalks. The flower-heads are from 2 in. to 2½ in. across, and are yellow with a broad zone of deep crimson—colours which, contrasting strikingly one with the other, are very attractive. There are numerous varieties of *Gaillardia*, differing



Gaillardia picta.

from each other chiefly in the colour of the blooms, but there is one with fistulose stems said to be very fine. It is a most desirable hardy plant and should be in every mixed border.—W. G.

Myosotis dissitiflora splendens.—This variety is larger and taller than the type; it is also so different as almost to merit the character of a species. The flower-stems are much taller and the flowers almost as large again as those of *M. dissitiflora*; they are also several shades lighter, and the yellow eyes and bands or rays are as large and wide again. The change of colour and enlargement of the eye are not improvements. The flowers of *M. d. splendens*, from the widening of the petals, are more of cups than stars; the latter shape is one of the most beautiful features of the species. The general effect of the latter is as if the flowers were wholly blue; whereas, the yellow eyes and rays being so much larger in the splendens, gives the general effect of two colours. Nevertheless, the improved variety is a most welcome addition, and was sent to me some years since as a seedling raised by Mr. Allen, whose address I have unfortunately mislaid. Mr. Allen also sent a second variety, which I do not consider any improvement on the species. Like *M. dissitiflora*, the splendens is a most valuable plant for flowering in pots in the early spring; it is equally hardy in the open as the normal type, and the leaves and general habit of the plant can hardly be distinguished from the dissitiflora. A white of splendens or the species would prove invaluable; but though white Forget-me-nots are comparatively common, the dissitiflora has as yet, so far as I am aware, refused to come white, or, indeed, to change colour at all until the arrival of splendens, which is two or more shades lighter. This Forget-me-not is now in the highest perfection, being a full month later than usual under the same treatment; but it is worth waiting for, and, come when and how it will, is without a rival among hardy flowering plants.—D. T. FISH.

— At the time when I wrote the foregoing I had not seen or read "A. B.'s" remarks on the above named plant at Kew, viz., that the colour was clearer and brighter than that of any other. I have not seen the plants at Kew; but this is by no means the case with the *M. d. splendens* I have seen and correctly described in the preceding remarks.—D. T. FISH.

Myosotis Weirleigh Surprise.—This beautiful Forget-me-not has white flowers, with a blue stripe across each petal, evidently the result of crossing blue and white. We have a great many seedlings from this flower sown last season, and they are coming into bloom just about equally, pure blue and pure white. Only one plant so far is striped like the parent.—BROCKHURST, *Didsbury*.

Osmunda regalis.—There are two very distinct varieties of this queen of Ferns—one having the fronds very broad and the other narrow. I do not find this noticed in any book on Ferns, but the varieties are quite as well marked as are those in the *Polystichums* and *Lastreas* and other British species, and to which names have been given.—BROCKHURST, *Didsbury*.

Saxifraga peltata.—This most showy of all the Saxifrages is now beautifully in flower here. One root planted four years ago on the rockery has worked its way under the stones for fully a square yard, and, although not a single leaf is yet in sight, has thrown up eight stout stems, from 2 ft. to 3 ft. high, each bearing a compound umbel of from fifty to a hundred lovely pink flowers, with deep rose-coloured centres, like pale pink Hawthorn blossom. It is also in flower in a damp place in the wood, but the flowers are not so good as on the rockery.—BROCKHURST, *Didsbury*.

Trillium grandiflorum.—Among hardy plants now in flower this is one of the most chaste and beautiful, and yet it is seldom seen in gardens, its absence, no doubt, being owing to a want of success in its culture, through its having been planted in unsuitable situations. It is one of those subjects that will not succeed in an ordinary border, exposed to the sun, and starved from lack of moisture. It is a shade and moisture-loving plant, but, although this is the case it is useless planting it in wet, stagnant soil, as there the roots perish in winter. The place in which it is most at home is by the side of a watercourse, or in loose, damp earth full of decomposed vegetable matter, where, from being able to ramify freely, it soon forms fine masses and becomes very floriferous. As the flowers of this Trillium are borne on the same stalks with the leaves, they cannot be cut to be of use without taking the two together, which weakens the plants; cutting should, therefore, be avoided, and the foliage taken every care of in order that it may be of assistance in developing and ripening the crowns.—S. D.

Spiræa palmata.—Turning over some old numbers of THE GARDEN, I notice (p. 324, 1879) mention made of this interesting plant, from which I learn that there is some peculiarity in its cultivation not generally understood. I was tempted by the plate you published of it last year to order a plant of it from London, and hoped to have seen it flower in the autumn, but it did not do so and it does not seem to grow much; I planted it against a low wall in ordinary garden mould. I remember when I asked for it at one of our nurseries, they said they did not keep it, "as it did not force well." A few days since I asked another of the florists here if he had it, and found he had, but could not flower it. This quite agrees with what the "Old Gardener" writes Oct. 11, 1879; but probably some of your correspondents could inform us of the proper way to treat it, and it is so pretty a subject that I hope you will think it worth while to draw attention to the difficulty which some persons experience in growing it properly.—AN AMATEUR.

The White Creeping Forget-me-not (*Omphalodes verna alba*).—I was much interested in your notice of this welcome addition to our spring flowers; a few more whites of this character would prove most welcome, and the mixture of the blue and white would render the latter more strikingly beautiful. By the way, has any one noticed how soon these flowers fade when cut? While the *Myosotis* grows in freshness and beauty in water, the *Omphalodes* speedily fades. This is unfortunate, as few flowers have a more fairy-like grace and lightness in small baskets or small vases than the ground Forget-me-not, garnished with its own verdant leaves and branchlets.—D. T. FISH.

Tropæolum Hermine Grashoff.—Last autumn I received from Messrs. Clibran, of Altrincham, a plant of this new Tropæolum, and can fully corroborate the good account of it given at p. 414 of current vol. of THE GARDEN. I have found it a very free flowering variety of dwarf branching growth, producing in profusion its brilliant scarlet rosette-shaped blooms.—J. T. POE, *Riverston*.

Campanula alpina.—This lovely alpine is seldom seen in true character in England. It is now in flower here from plants obtained in Switzerland. From a small boss of leaves, 2 in. at most across, a stout stem rises some 4 in. or 5 in. high, bearing large blue bells, which seem quite out of proportion to the tiny plant. One plant has been in flower now for a fortnight, and has eight such bells, much resembling our Scottish Harebell (*C. rotundifolia*), but of a deeper purple.—BROCKHURST, *Didsbury*.

Sparaxis Out-of-doors.—Some clumps of Sparaxis entirely, unprotected have stood out-of-doors during the last two winters and are now coming on strongly and well in a border facing the south, but fully exposed. They flowered fairly well last year, but promise much better now.—W. ADDISON, *Broxbourne*.

Procumbent Phloxes.—Among the most attractive plants to be met with in the herbaceous border just now are these Phloxes, two of the best of which are *P. Nelsoni* and *P. setosa*. Plants of the first named are full of flower and so dense as to form quite white cushions, producing a most pleasing contrast with the deep rosy-pink of the other. For planting on rockwork or to trail over banks or mounds along with *Aubrietias*, *Lithospermum prostratum*, *Arabis*, the lovely little *Daphne Cneorum*, and other plants of that

class, these Phloxes are quite unsurpassed, as in such positions they have a matured look and show off their beauty to the greatest advantage.—S. D.

Dielytra eximia.—This is a charming border plant, its foliage is prettily cut and Fern-like, and for this reason I prefer it to *D. spectabilis*, although the flowers of the latter are far better than those of *D. eximia*; *D. spectabilis*, if grown in heat, has a miserably straggling habit.—W. ROBERTS.

Packing Flowers.—All flowers travel well when covered or enveloped in some material which prevents evaporation, such as gutta-percha paper. Fine specimens when cut often come to us dried up from the neglect of this precaution.

THE GARDEN FLORA.

PLATE CCLXXXV.—NEW ABUTILONS.

To Mr. George, of Putney Heath, we are indebted for the materials from which the accompanying plate was prepared. On the improvement of the Abutilon he has bestowed long and patient attention, and the results have been most satisfactory. "Until within the last five years," he says, "we had only two colours in the free flowering section, viz., *Boule de Neige* (white) and *Darwini* (orange colour). With these two varieties I began to hybridise, but I cannot now recollect which was the seed-bearing plant. My first cross-bred seed was sown on April 1, 1876, and the result was many shades of rose colour and orange, and, strange to say, not one resembled either parent. Every year since I have produced plants with fresh colours too numerous to mention, but prominent among them were deep rose, lake, purple shaded with magenta, and red nearly approaching scarlet. Although Abutilons will flower all the year round, I find that they make the best display in winter, the colours coming much better than in summer. In raising seedlings the objects I have had in view have been to get large flowers with bright and decided colours, and to reduce the size of the foliage. In both points, as will be seen by the accompanying plate, I have had fair success.

"Culture and Position.—Although Abutilons will succeed in a greenhouse, I find them to do much better when grown in a temperature of from 55° to 60° during the winter months. As to sowing, I consider April a good time to put in the seed, which should be raised in a little heat. We then get good plants by October, which will flower freely through the winter, when flowers are most useful. The soil which I use is composed of good yellow loam, peat, and leaf-soil in about equal parts, a little silver sand being added to lighten it up a little."

Unity of Expression in the Arrangement of Flowers.—We have several times alluded to the fact that there is too much of a muddle mixture in gardens. People seem to have the same notion of using the same things, and the result is that we get in gardens, instead of a succession of little pictures of real variety, one monotonous mixture everywhere. There are plenty of illustrations of what is a better way, but some baskets of the *Maréchal Niel* Rose arranged by Mr. George Paul the other day may be added to them. These were simple large baskets wholly filled with this Rose and its fine foliage, except a little tuft of Palm or Fern in the centre of each, the baskets standing on their own simple supports, and clear away from the stages of plants that stood near. The effect of the Roses was most satisfactory; they left an impression which they would not do if mixed up in the usual way. We may add that just now, when people are discussing the short life which the *Maréchal* has in greenhouses, those superb blooms were gathered from old plants grown in the Camellia houses. They were budded on standard Briers, and trained high in the roof to shade the Camellias in the summer. The plants are twelve years old, and the blooms were as fine as we have seen them.

Gardening in Iceland.—While gardening is somewhat depressed in Ireland, in Iceland we are pleased to see we have sub-



GROUP OF SEEDLING ABUTILONS

scribers for THE GARDEN. Owing to the similarity of the name, even on a printed wrapper, papers for Iceland sometimes pay a visit to the Green Isle before they get due north. Gardening in Iceland must be pursued under singular conditions.

ORCHIDS.

EPIDENDRUM BICORNUTUM.

ACCORDING to Mr. Bentham, this, the finest of Epidendrums, is not an Epidendrum at all, its botanical character being so very distinct from those of all true members of that genus as to not



Epidendrum bicornutum.

admit of its being included amongst them. He has therefore removed it to the small genus *Diacrium*, but be the name *Diacrium* or *Epidendrum*, or, as some might prefer, the Two-horned Air Plant, there can be but one opinion as regards its beauty, an opinion which has recently found free expression in THE GARDEN from there having been at Kew for some time several well-flowered specimens of this at present rare Orchid. The accompanying woodcut gives a very good idea of the form of the flowers, but it is impossible to reproduce on paper the crystal snow-like purity of their sepals and petals, and the soft purple-coloured dots on the lip which give the flowers a close resemblance to that queen of Orchids, *Phalænopsis amabilis*. Unlike her majesty, however, the flowers, which are borne on spikes of from ten to twenty flowers,

expand only in pairs or threes at a time, so that a strong spike will continue to produce flowers for about two months.

In THE GARDEN, Vol. XVIII., p. 136, will be found a few remarks on the cultural requirements of this plant, which is generally considered to be of rather a miffy character, though with me, and I believe at Kew also, it thrives under treatment of an ordinary kind. A native of some of the West Indian Islands, it requires a tropical stove temperature, and while growing an abundance of moisture both at the root and overhead. Peat and sphagnum with a little charcoal form a suitable compost for this species. I have tried it both on blocks and in teak baskets, and though it thrives on the former the latter treatment seems to produce stronger pseudo bulbs. It is probable that many have failed with this plant through its having been collected at the wrong season, it being very impatient of a check of its young growths, and seldom establishing itself under cultivation unless its first season's growth is strong and healthy. To intending importers I may perhaps hint that just now is the right season for collecting wild plants of this species. Z. B.

Phalænopsis after Flowering.—Now that the flowering season for these most lovely Orchids is fast drawing to a close, a few notes may prove interesting to those who have been previously unsuccessful in their culture. As soon as the spikes are removed from the plants, they should have all the old Sphagnum taken from the basket or pot. When all is carefully removed the roots should be washed in tepid water; this clears off all rotten Moss that may otherwise cling to the roots, and which if not done soon carries them off after the fresh Moss is placed around them. The drainage should be clean and sweet; fresh crocks I find answer the purpose better than charcoal and other things sometimes used. The Sphagnum should have a plentiful admixture of sharp sand with it; that known as Bedfordshire sand answers the purpose admirably. It keeps the Moss open and assists the inner Moss to dry, so that the plant takes a more plentiful supply of fresh water—a very material gain where plants take their whole nourishment from water alone. In basketing, the plants should be kept well up away from the Moss, for though they love to be damp when growing, if the leaves are allowed to rest on the wet Moss they soon become spotted and decay. They should be dewed over at least twice every day now to encourage growth, but the syringing should never be done until the thermometer registers 70°; this should be about nine o'clock in the morning, and they should be done again in the afternoon about three. The shading should not be withdrawn until, at the earliest, four o'clock, and as the summer advances it should be left until five. The plants should be sponged over as often as possible—say every fortnight. It keeps down thrips and red spider and imparts a healthy appearance to the plants, which will amply repay the attention thus bestowed upon them. In the cold dark days of winter I never under any circumstances put on top air where *Phalænopsis* are grown. If the compartment in which they are placed opens into another house I always leave the door open, which causes a good circulation of air to pass from the adjoining house through the air traps of the *Phalænopsis* house; fresh air coming into the house that way gets warm before it reaches the plants. Nothing is more destructive to these plants than cold draughts.—A. G. CATT, *Silverdale Lodge, Sydenham.*

WEIRLEIGH, BRENCHELEY, KENT.

It is a pleasure indeed to ramble through Mr. Harrison Weir's beautiful hill-top garden in Kent, a garden which, in order to render it enjoyable in the fullest sense of the term, has been the life-study of one who holds a high position in the art world. It is thoroughly unconventional, embracing great variety, and abounding in little pictures, so to speak, of floral life and landscape effect. No rigid extreme predominates—either a prim and trim appearance on the one hand, or a rough uncultivated aspect on the other, but a happy combination of the two so harmoniously united that one is rendered doubly enjoyable by the sudden transition to the other. As to the charming landscape and the extensive prospect obtainable from all points of the garden, as well as the house, we doubt if it is surpassed even in Kent. The position is nearly on the summit of a rather lofty hill, near to Brencley, a village famous in the gardening world as having given origin to the most effective of bulbous plants, *Gladiolus brencleyensis*, and in fruit the Black Diamond Plum, both raised by Mr. Hooker. Such a commanding position and delightful scenery is the chiefest consideration in a garden, though

it too possesses disadvantages, the full exposure to wind being the greatest, for none but old weather-beaten trees can withstand for weeks the incessant lashings of frost-biting winds, and to newly-planted things it is destruction. This is one of the chief difficulties with which Mr. Weir has to contend, and he points with dismay to many a fine shrub which has been disfigured or permanently injured. The advantage of position has been made the most of, particularly as regards the tree planting, for by placing trees in certain positions, the adjoining property is made to combine harmoniously with Weirleigh, and adds considerably to its beauty and apparent extent; indeed, the garden appears to be much larger than it really is, and it admirably shows how the most can be made of a comparatively small area of only $4\frac{1}{2}$ acres. For instance, there is nearly a linear mile of walks; yet, with a few exceptions, there is no parallelism, or at least one walk is not seen from another, and the surface is not cut up in a meaningless manner for the sake of having a walk, but each is directed to some definite object, and all are so designed that at every bend there is some interesting object to engage the attention. One of the most charming features in the garden are arbours and seats in various parts, each having a different aspect, and so contrived that they are effectually sheltered from wind. For example, one has a southerly look-out, sheltered at the back, and commands a vast panorama of the beautiful Kentish country; another, directed westward, is frequented towards evening, when an uninterrupted view of the setting sun may be enjoyed and the nightingale's song in the adjoining wood. From other arbours and seats may be viewed the choicest glimpses of garden scenery, some in the neatly kept parts, others in delightful little snuggeries midst Ferns and wild flowers, which are encouraged and cared for as if of exotic origin. The noble male Shield Fern, *Aspidium Filix-mas*, is particularly abundant; in front and around one of the arbours there is a broad carpet of 150 plants of it, the unfolding fronds of which are even now handsome, but still more so when the waving mass of leafage is developed. The Lady Spleenwort (*Athyrium Filix-foemina*) too is plentiful, and there is one new and extremely elegant variety named Weiri with crested pinnae, which makes a beautiful indoor plant. This was raised here besides others. The Oak Fern (*Polypodium Dryopteris*) holds its own among numerous other kinds, and is just now clothing itself in new emerald green fronds, delicately cut. The principal part of the garden vegetation of Weirleigh is hardy, and it is on this account that it is so enjoyable, and in making a selection of plants to be grown there has been discretion used, and only the finest subjects given place to. The borders, like everything else here, differ from the customary style in gardens, viz., that of introducing fruit trees amongst the shrubs with considerable effect in early spring and autumn, and placing plants at regular intervals apart, the tallest at the back and the dwarfest in front; on the contrary, they are disposed in an informal, yet artistic manner, and all seem to thrive satisfactorily. By the side of the short carriage drive is a steep bank with projecting rocks which afford a foothold for myriads of alpine and herbaceous plants, while above are shrubs, of a bolder type of hardy perennials, such as Lungworts, Comfrees, Mulleins, Onopordons, which in such a position have a far finer appearance than in a dug border. Among the shrubs in flower were the Yulan conspicua (*Magnolia Yulan*), with its large showy white blossoms, and *Amelanchier Botryapium*, a mass of snowy whiteness, both adding to the charms of the plant life of humbler growth. On the opposite bank there is likewise infinite variety, broad masses of *Gentianella* (*Gentiana acaulis*) with its cups of intense coerulean hue and its lesser congener *G. verna*; spreading tufts of the equally beautiful *Myosotis dissitiflora*, which has come through the winter unscathed; lovely breadths of *Phlox frondosa*, *verna*, *Nelsoni*, *setacea*, *atro-purpurea*, *canadensis*, *divaricata*, *Fritillaries*, *Iris*es, *Primroses*, *Orchises*, *Stonecrops*, and *Saxifrages*, all thriving in sweet copartnery.

About the only formal line of plants in the garden is a glorious band of the *Gentianella* skirting the border around the carriage ring, and we have never before seen it so bright and beautiful, the masses being 1 ft. or more square, completely studded with large blossoms of a colour only attainable in the free air of such an upland garden as this. Other hardy plants of note were *Saxifraga cordifolia gigantea*, with stout stems well nigh 3 ft. high, and terminated by a large, dense cluster of rosy-purple flowers. Everywhere the borders are enlivened by spring flowers

in great variety, and a lesson may be learned here by the devotees of ephemeral summer display, who have nothing to show in spring but bare earth in their garden borders. The flowering shrubs, too, add considerably to the attractiveness of the garden, and among these were conspicuous *Berberis dulcis*, also *Darwini*, and the Japanese Pearl-bush (*Exochorda grandiflora*). Among other plants of special note are the

Tree Pæonies.—Of these there are some exceptionally fine specimens, which, in a week or so, will make a fine display, as they are full of buds; some of the plants, which measure some 4 ft. or 5 ft. across, have a score or so upon them. It is remarkable that these noble hardy plants are not more largely grown than they are, for they are among the most beautiful flowers we possess, for what could well be handsomer than their huge rosettes of satiny blooms, often measuring 9 in. across—one bloom gathered here was 1 ft. in diameter—and of such delicate shades from a deep rose to snowy white? Some consider them tender, but here, in this bleak garden, they thrive marvelously, and were not injured in the least by the severe cold of last winter. These noble plants, grouped with the herbaceous Pæonies and other fine hardy flowers, faced by over 100 varieties of *Iris germanica* and *Kæmpferi* of sorts, form one of the finest features in the garden. The showiest flowers are the

Auriculas and Polyanthuses.—These are both favourite flowers at Weirleigh, and everywhere about the garden the borders are gay with them, especially the Auriculas, which are not puny little tufts as we are wont to see them in pots, but spreading healthy masses, forming quite dense cushions of bloom of a wonderful variety of colour, with every conceivable shade intervening between, almost pure white to the deepest crimson, and nearly black. They are principally seedlings raised by Mr. Weir from alpine and self varieties, and though, perhaps, they do not strictly indicate the arbitrary points laid down by florists with regard to symmetry and such like characters, they are pre-eminently suited for border decoration, and are quite as enjoyable and infinitely less trouble than the choicest varieties, though of these Mr. Weir has a capital collection in frames, but at the time of our visit they were past their best. The border Auriculas seem to delight in this keen hill-top situation, and in parts where they have been left undisturbed for some years it is no uncommon sight to see a tuft 18 in. square, and a complete mass of bloom. They seem to thrive best in places where they are kept rather dry by overhanging foliage of evergreens, though not so much as to afford permanent shade. It seems remarkable that these border Auriculas are not grown more in gardens, but probably it is accounted for by the choice varieties as a rule being reputedly difficult to manage. Then there is that interest attached to them by raising new varieties from seeds, and often some entirely new breaks in colour can be obtained by this means. The laced Polyanthuses and coloured Primroses, though they do not embrace such a diversity of colouring as the Auriculas, are exquisitely beautiful, and by selecting from seedlings year after year, Mr. Weir has obtained some remarkably fine varieties, and among the former some even surpass the old-named varieties both in colour and quality of flower, and, as with the Auriculas so with these, there is that robust vigour that is never observed with highly refined varieties. The Primroses are in great variety, too, and include some excellent sorts particularly adapted on account of their compact habit and profuse flowering for spring bedding purposes, though they are not used in such a formal manner here. Many sorts which are in advance of others have received names, but the finest of all is one named Major Horrocks, which forms a spreading, dense, compact tuft, completely studded with perfectly circular flowers of a rich deep crimson, and a symmetrical five-angled centre of bright gold. This variety may be recognised among a host of others, and it seems to retain its peculiar characteristics in every part of the garden.

Grapes.—The Vine is a special object of culture, and the two Vineries, though small, teach a lesson in themselves, for they show, in a manner rarely seen, how Grapes of the highest quality may be grown in houses with other plants. Mr. Weir's Vineries contain a heterogeneous mixture of plants, generally considered to require dissimilar treatment, yet all are thriving admirably beneath the shade of Vines bearing crops, clusters which bid fair to surpass those that have previously received such high appreciation at the Royal Horticultural Society. What is most remarkable is that the kinds grown are those that gardeners considered out of the

ordinary run; for instance, in one house there is that excellent sort the Duke of Buccleuch, which has set a dozen and a half fine bunches of berries, Champion Muscat with two dozen bunches—a great favourite here—Venn's Muscat, while in the other house are some fine examples of Madresfield Court, Trentham Black, grafted on Mill Hill Hamburg, and against a back wall Golden Queen, which succeeds well in such a position. All these Vines, and particularly the Madresfield Court, which are wonderfully fine, could probably not be surpassed by those grown in houses entirely devoted to Vines, and it affords a good example of how much may be made of small means. There are also some excellent ground Vineries, and Mr. Weir is particularly successful with them. In one he has a fine rod of Duke of Buccleuch, breaking well, in another Champion Muscat, and a third the Golden Champion, which all thrive well. A variety raised here called The Artist is especially adapted for a ground Vinery, and the fruit from it has been highly approved by the Fruit Committee. This year Mr. Weir has tried it under heat, but so far it is very inferior to its fine condition in the ground Vinery, which is excellent.

One feature remains to be noticed, that of turning the fruit tree department to account as a pleasure garden. Thus we find one path overshadowed with Apple trees, which to walk under when in bloom is truly beautiful, as also when laden with fruit. On each side of the path there are Gooseberry bushes, between which are Polyanthus and also Iris germanica of sorts. In the front line are Crocus, and between them large clumps of Daffodils, mostly of the Leeds' varieties. So the path from the earliest part of the spring is margined with bright blooming beauty. There is a similar path, only with this difference, that one side under the trees there are wild plants, which have also a pretty effect. Almost everywhere in the garden are fruit trees here and there intermixed with the flowering shrubs, being both useful and very ornamental combined with the coloured Acers, golden, golden and silver variegated Elders, and other things. W. GOLDRING.

NOTES FROM SOUTH WALES.

The Potato Disease has already appeared here. Early in spring we made up some hotbeds, covered them with frames, and planted Potatoes inside in the usual way. A few weeks since the frames were removed to protect bedding plants, the Potatoes being left exposed, and in lifting some of the roots a day or two ago, I was surprised to find a great number of them badly diseased. I never saw them so much affected in frames before, nor have I seen them diseased so early in the season. Plant early and lift early, so as to get the tubers safely out the ground before July, is said by many to be a certain way of evading the disease, but our case shows that there may even be exceptions to this rule. Early Potatoes out-of-doors, some of which are now 18 in. high are looking remarkably well, and it is to be hoped the case in question is not the fore-runner of general decay.

The Best Cucumber Manure.—We have lately been experimenting with Cucumber manures, and the result may be interesting. The soil for all came from an old pasture, and this was divided into several portions, each of which was mixed up with a separate manure, according to its value and power. The manures used were—1, cow manure; 2, blood manure; 3, horn shavings; 4, Amies' Chemical Manure; 5, superphosphate; 6, ground bones. All the Cucumbers were planted in the same bed, and subjected to the same top and bottom heat, and of course the plants were of the same age and size when planted. All excepting 4 (Amies') might be growing in the one kind of manure as far as any visible difference in their leaves or fruit is concerned; but 4 has run away from the others altogether, not so much in the leaves as in the fruit. For more than a week there has been fruit on this plant ready for cutting, where there will be none in that stage on any of the others for another week or more. In this instance, therefore, Amies' manure has shown itself to be superior to any of the others named. We have a few more new Cucumbers on trial this season, but so far we have found none to equal Rollisson's Telegraph for general usefulness.

Berberis Darwini.—Of all the shrubs which produce orange-yellow flowers in April and May none are finer than Darwin's Barberry. At present it is a perfect mass of blossom. It has a fine appearance either as an isolated specimen or dotted here and there among the shrubs. The severe weather has not injured it in the least, but the plants growing in sheltered spots are fresher looking and more vigorous than those in exposed places. It was not the frost, however, that injured the latter, but the wind, and

this is the case with all our bushes killed or injured. Sweet Bays fully exposed to the blast are leafless, while others more sheltered from wind, but equally exposed to frost, are safe.

A Beautiful Tea Rose.—When a general collection of Tea Roses is in bloom it may be a difficult matter to tell which is really the most lovely, but I think all Tea Rose growers will agree with me that if Catherine Mermet is not the very finest Tea Rose in cultivation, it is at least one that will attract attention in any group of Roses. It is one of our greatest favourites, and in my estimation there are few more beautiful. Its blooms (rosy-carmine) are of a most pleasing tint—one not often seen, and their shape and fullness are perfection itself.

A New Radish.—A few weeks ago Messrs. Sutton sent me a packet of seed of a new early Radish to try, and I may now say that to me it appears a kind of much value, as the roots are so round, high coloured, and pleasant flavoured, while the growth is rapid, and the leaves have not grown more than 1 in. or so above the soil. It is more compact in growth than any other Radish with which I am acquainted, and this alone will recommend it to many.

The Banksian Rose.—"J. G." (p. 473) speaks of this as being generally killed outright, but this is not the case in this quarter. A plant which covers a very large space against the south wall of the church here is looking as healthy at the present time as ever it did, and its pretty quaint little lemon blooms have been expanding into full flower for some time past. As a wall screen it deserves to be generally grown, as it grows fast and is not unornamental even when out of flower.

Spring Cabbage.—Hereabouts the complaint is that these do not heart, but run prematurely to seed. I have experienced a good deal of the same thing, but in growing many varieties I find that some are more liable to bolt than others, and I think spring-flowering Cabbage might almost be an unheard of occurrence if care was taken in selecting sorts. Our spring Cabbages this year include some half dozen sorts. In several long rows of Early York, every one has run to flower, and no more of this will be grown for spring use. Following this on the same piece comes Pearson's Conqueror, and every one of this has formed heads or is now doing so, and a mark of high merit has been put against it. Carter's Heartwell is another variety deserving the same distinction, but the finest of all our Cabbages is one which we have been growing for two years, which we got from Messrs. Dicksons & Co., of Edinburgh, named Redbraes. It is of remarkably quick growth, a certain heartier at all times, conical in shape, and when cooked excellent. J. MUIR.

NATURE V. ART IN THE GARDEN.

AN article of mine in *Harper's Monthly* has been recently criticised in the *Field*. Language certainly does not convey thought if it can convert a forty years' belief in the natural into an earnest advocate of the topiary style of landscape gardening. The critic in question has evidently formed his impressions from the illustrations only. Had he carefully read the article in *Harper* he would have seen that it consisted of a *resumé* of the horticulture of the past, a sketch of the introduction of the two styles, and a clearly expressed preference for the natural over the artificial, supported by quotations from Repton and Knight. Some of the words were these: "Here is shown the superiority of the natural, or English conception of landscape gardening not only over the old topiary or Italian mode, but also over the more modern one of numerous flower-beds and ribbon gardening." Is there any possibility in the English language to express an opinion more clearly?

The artist chosen to illustrate the article assumed, very properly, that every one knew what the "natural" style meant, and that comparatively few were acquainted with the meaning of "topiary." He therefore chose to illustrate the latter by four well-known examples. The other four illustrations may well belong to the natural style, although a model for a better one was not within his reach. The limitless possibilities of horticulture may be illustrated by both, let the inferiority of one or the other be what it may. The beautiful vistas formed by weeping Beeches can scarcely be considered topiary; if they are so, what are the Oak and Linden avenues and the vistas through woodlands which Englishmen like? One-third of the article is taken up with topiary work and its possibilities for evil or for good, and two-thirds by suggestions for the natural style and the various tree forms which make its possibilities for good only. Having thus clearly defined my position, I would like to defend Messrs. Sargent

and Hunnewell from adverse criticism. In America no one questions their taste. When they have so many beautiful things, why should they not indulge their fancy for the strong contrast of an Italian garden or even a window through a trimmed Beech? Is it not quite as tasteful as Coleus beds or ribbon gardening, in which Englishmen delight, but which are never found in Nature? I think that an Englishman would scarcely say that the golden Yews at Elvaston, the artificial ravines at York, or the illusory rock-work at Chester are abortions. They each give a legitimate pleasure, and Americans know what that is, when, after a ride of hundreds of miles over dreary barrens or monotonous forests, they come suddenly upon a trimmed hedge—not that a trimmed hedge is to be commended always, although it is one of the charms of England, but it shows that the hand of man is there, that civilisation is near. After all, who is to pronounce upon true art? and what is its definition? Landseer gave his animals almost human expression, and the world recognised his skill. Whistler threw the contents of his palette at the canvas, and his fellow artists are entranced with the effect. The realistic and the impressionist have each their earnest advocates. The old *de gustibus* still prevails, and the only safe guide is Nature. Thus it is that I wish to be understood as advocating the natural style only. I would ask the writer in question to remember that there may be possibilities for evil as well as for good, and that illustrations of the former are not always “pernicious in their tendency.”

S. B. PARSONS.

Flushing, Long Island, U.S.A.

[We welcome any expression of opinion from Mr. Parsons, but desire to say that the old notion of tamely acquiescing in the belief that all things are matters of taste will never do. The future of our gardens depends on calling ugly things by their proper names. There is no tangible question whatever underlying the art of gardening or any other art which is not based on laws. That “it is a matter of taste” is the expression of hopeless and blind weakness. We have too long tolerated this kind of thing, and paid for it in such monstrosities as a large portion of the Crystal Palace gardens and the gardens at Kensington, not to speak of many other horrors near what might be the fairest parts of public and private gardens. Nothing was said against the matter of Mr. Parsons’ article, but against giving in *Harper’s Magazine* a number of illustrations which could be only harmful in their tendencies. What Mr. Hunnewell or Mr. Sargent do in their gardens is, it is true, not public business, but when any fantastic barbarism is put in a public magazine, then it is a matter for fair comment. The assumption that everybody knows what the natural style means is more than can be admitted of *Harper’s Magazine*, for six months might be occupied in showing its manifold charms and variations. Topiary work is defunct, and the less said of it the better. If a man wants a window through a trimmed Beech, by all means let him have it, but let no one copy it as either beautiful or instructive and put it in a magazine read in both continents to a large extent. The question of English men or other men has nothing to do with the matter; it is a question of gardening. While architects, landscape-architects (to use a dreadful word), landscape-engineers (another), builders, and the like may do what harm they can in putting stone, shears, and other materials to ignoble use, gardeners of the high race of our worthy and esteemed correspondent should be above all suspicion of sympathising with such doings.—ED.]

English Names.—We observe Mr. Meehan says: “We repeat, there is no objection to common names. We like common names. But they must become common before they are entitled to that character. True common names grow—they are not made.” We are glad to hear it, but how English names should grow without having a beginning we do not see. It is not a scientific way of looking at things as Topsy looked. Surely Mr. Meehan, who has seen so deeply into many obscure matters, must know that even an English name must be first used by somebody, and gradually grow like other things. But those who like ourselves have special means of appealing to a large number of readers interested in plants, have as good a right to give a plant an English name as a Latin name, and this is a privilege that we are glad to see our American friends are availing themselves of. We frequently see good English names in the *Rural New Yorker* and sometimes one we can adopt; so we do in the *American Agriculturist*. We are pleased with this, because George Thurber cannot be said to approach the thing solely from a horticultural point of view. In the last number for example, he christened that

handsome new plant *Chionodoxa* “Snow Glory.” We ourselves have named scores of plants, and observe the names in common use already both in America and in England, and shall continue in the same manner, encouraged now by the boldness of our friends across the sea. This is what Thurber says:—“When a new bulb comes to us weighted with such a name as *Chionodoxa*, if it is ever to become popular it must have an easily-remembered and readily-spoken name, else, no matter how beautiful its flowers, it will never take with the people. Fortunately, *Chionodoxa* will translate into Snow Glory. We have, as other early spring bulbs, Snowdrop and Snowflake, and this, more showy than either may well be Snow Glory. The genus is closely related to *Hyacinthus*, while the plants have more the appearance of some of the small *Scillas*.”

THE INDOOR GARDEN.

Griffinia Blumenavia.—This, one of the finest species in this beautiful genus, is now in flower in No. 3 house in the gardens of the Royal Botanic Society, Regent’s Park. It is one of the section which bears foliage and flowers simultaneously, the leaves being lance-shaped, rather broad, and of a deep green hue. The flower stalks are stout and erect, about 1 ft. high, terminated by an umbel of from five to ten flowers, from 2 in. to 3 in. across, with open and slightly spreading petals of a pure white colour, each heavily banded and feathered with a pleasing pale carmine tint. It is an extremely pleasing plant, and one that should find its way into every garden



Griffinia Blumenavia.

as its culture is simple compared with other bulbous plants. A plant of the same kind is also in flower in Messrs. Henderson’s nursery, Pine-apple Place, St. John’s Wood, where there is an unusually rich collection of tropical bulbous plants.—W. G.

Gardenias Planted Out.—This favourite white-sweet-scented flower, which we used to see starved in pots, and generally full of mealy bug and its marks, has of late years been cultivated in a much more sensible and successful manner. Instead of the old and uncertain culture in pots, gardeners have discovered that the plant grows infinitely better when planted out in a bed or border as near the glass as may be, and in suitable light rich soil. It grows immediately under such conditions like a little evergreen, which it is, and yields freely those fine specimens with which flower shops have now to be so well supplied, and which bring such high prices therein. The first place in which we noticed the splendid growth of the common *Gardenia* planted out was in Mr. Ladds’ nursery at Bexley Heath, where in a span-roofed house he had a number of plants growing, planted out on mounds and doing pretty much as Laurels do in a young shrubbery. The growth in such conditions being more rapid, the plants can be kept clean, and they flower much more freely. At Syon the other day we were pleased to see the whole side of a house fresh and green with blossoming *Gardenias*. What used to form an old stone stage in front of the house had been converted into a receptacle for good soil the whole length of the house. In this the *Gardenias* were planted, and formed a compact little hedge, so trained that one could not see the soil that bore them. In this way the house was made more pleasant to look at than if the

bench contained a number of red pots, while the culture of this valued flower was carried out in a way much less troublesome than the old one of pots. The whole question of the cultivation of important plants in our houses is capable of being much improved in the carrying out of the same plan. We think glasshouses generally have been planned too well for the accommodation of a great number of small plants in small pots. In them one can, when one desires, seldom find means of planting out subjects so that they would do well. The plugs and the pipes and drains, and the shelves are all against any one who wants to adopt this simple mode of culture. But any one who would so plan his hothouses that a well-considered scheme of planting out may be adopted, would get results both in culture and in effect which are quite impossible in the common way.—W.

The Double Poinsettia.—"S. D." in his useful remarks on the value of this variety (p. 469), omits to name the extraordinary persistency of the bracts. These, from their semi-duplex character, continue to unfold for three, or even more, months at a stretch. What would be the inconspicuous and comparatively useless florets in the other varieties continue to develop into bracts, and those first expanded also remain on fresh and full of colour. It is this filling of bracts above bracts in succession that gives that durability to the bracts of this variety, which is one of its greatest merits. I agree with "S. D." as to the superiority of the double kind compared with the common varieties, though it is not likely to supersede them for this, among other, reasons that it is fully a month later under the same treatment. As to hybridists mixing the colour, I trust they will not. The colour of the Poinsettia is so unique that it has become as it were one of the most essential elements of its character and beauty. So much is this the case that even the white, or rather pale cream, coloured variety has never become popular, and the more these two colours get mixed, so much the worse for the richness, beauty, and unique distinctness of our Poinsettias. I am also glad that neither "S. D." nor any one else has as yet succeeded in crossing Poinsettias with *Euphorbia jacquiniæflora*. Both plants are perfect for decorative purposes as they are. They would be less so in the exact ratio in which either was mixed with the other.—D. T. FISH.

Planting Out Azaleas in Summer.—The Belgian practice of planting out Azaleas in summer is not, I think, worth imitating in this country. The only gain would be size, and that, in nine cases out of ten, would be no gain at all, as it is not large plants that are desired, but compact little specimens adapted for furnishing a conservatory or greenhouse. These are best kept in pots, but they may with advantage be placed out in the open after having set their buds to help to harden and mature the wood, an important point in Azalea cultivation, as on it depends in a great measure their flowering satisfactorily and keeping in health afterwards. The thing to avoid when plants are placed out-of-doors is exposure of the pots to the sun, which, from striking their sides, heats them to that degree as to be quite fatal to any roots that may have found their way to the outside of the balls. The plan which we generally adopt is to drop the pots into others of larger size, which not only obviates the evil just alluded to, but keeps out worms. If pots are not made use of in the way mentioned, the plants should be set on boards or pieces of slate or tiles, and have some straw pushed between them to act as a kind of plunging material and keep the roots cool. Managed in this manner, I have had Azaleas do just as well in the open as in houses, and I am now turning out a quantity to make their growth, which, by the aid of syringing every afternoon, I have no doubt they will be able to do. To get fine flowers without the crowding one usually sees, the shoots should be thinned and all extra strong ones stopped or removed, as by so doing the flow of sap is made more equal and regular over the plant.—S. D.

Forcing Snowdrops.—Although the Snowdrop is not amenable to the ordinary rules of forcing, like the Tulip or Hyacinth, yet it may be assisted and had in bloom earlier than it otherwise would be if forced slightly. My first attempts ended, as others have done, in failure, owing to employing too much heat. The method I at that time adopted was, after potting ten or twelve bulbs in a pot, to plunge them outside with the other bulbs, then by degrees introduce them into the forcing house with Tulips, Hyacinths, Scillas, and such like things, giving them a little bottom-heat, and the result was they all rotted off; while some which I kept drier, and without the bottom-heat, grew into poor attenuated subjects, and the flowers went blind. I then determined on a different course of procedure for the following season, and about the middle of September potted and plunged them as before; then early in December, when they had started into growth under the ashes with which they were thickly covered, I got them out and placed them in a frame with but a single pipe through it, and the heat only turned on during frost; air was given freely on fine days, but with caution during the cutting winds.

The result was, they came on slowly but sturdily, and began to open in the early days of the new year; thus for the last three years I have cut flowers on January 2, 4, and 7, which was certainly a good deal sooner than they would have opened without such assistance.—H. P.

GARDEN DESTROYERS.

THE PEACH APHIS OR BLACK FLY.

(APHIS AMYGDALI.)

PEACH and Nectarine trees, as is too well known, are often very badly invested with aphides or blight. There are three kinds which are exceedingly destructive to the leaves and young shoots of these trees; by most persons these three species are imagined to be the same, and are called by the same English names, but this is not the case, and though they appear to be very similar at first sight, a closer examination will show various differences. This, however, though very interesting to the entomologist, is immaterial to the fruit grower, as the habits of all the species are the same,

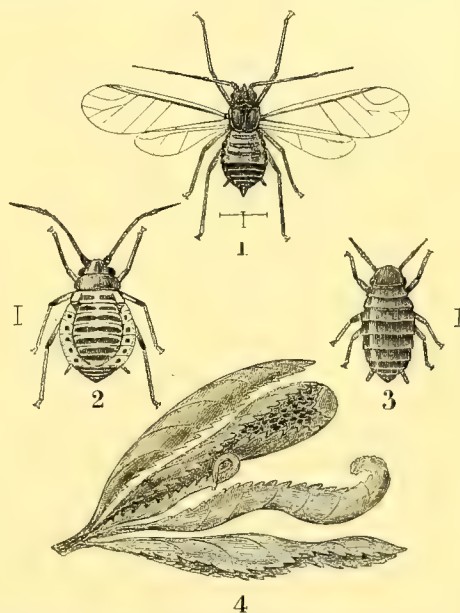


Fig. 1, Winged Female, magnified; Fig. 2, Apterous Female, do.; Fig. 3, Larva, do.; Fig. 4, Peach leaves attacked by Peach Aphis.

and they may be destroyed by the same means. Trees suffer very much if badly attacked by these insects, for they deprive the leaves and young shoots of their sap, and cause the former to fall off, leaving the trees bare and without those very useful appendages. I have chosen for description, &c., the species whose name stands at the head of this article, as it is the commonest and the earliest to appear in the spring, often attacking the young leaves as soon as they begin to open, causing them to curl up by constantly puncturing and drawing off their juices. This curling of the leaves unfortunately provides the aphides with a very efficient shelter, so that when the trees have been attacked for some time it is not of much use to apply any fluid insecticide by syringing, as very few of the insects will be touched by it. When trees are in this state the best way is to thoroughly fumigate them. This should be done two or three times if necessary, with an interval of two days between each operation. Fumigation is easily managed if the trees are cultivated under glass, but when the trees are against walls in the open air it is a much more troublesome matter; however, it can be done very effectively by leaning poles against the wall, and spreading a tarpaulin or stout canvas well wetted on them. This covering should be kept down on the top of the wall by a plank weighted with bricks or stones, and be allowed to fall over the poles to the ground. At the sides it should be kept as close to the wall as possible by upright poles or a few laths and nails; the chief object should be to prevent the smoke from escaping. A still mild evening is the best time for operating on the trees. In this, as in all

other cases, prevention is better than cure, and as the first of these insects which appear in the spring have been hatched from eggs which were laid the previous autumn near the buds, it is obvious that if these eggs can be destroyed the trees will be free from these pests. To effect this in the early spring, before there is a chance of any aphides being hatched, the trees should be unnailed and well scrubbed with soft soap and Tobacco water (2 lbs. of soft soap dissolved in 3 gallons of hot water—when cold add 1 quart of Tobacco water), or well painted with a mixture of 1 lb. of flower of sulphur, 1 lb. of Scotch snuff, 1 lb. of quicklime, $\frac{1}{2}$ lb. of lamp-black, and 1 lb. of soap, with sufficient water to make them into a thick paint. When the trees are renailed, new shreds should be used, or the old ones should be boiled or well soaked in one of the above mixtures before being employed again. If the aphides have only just made their appearance, when first noticed the shoots may be dipped in the first-mentioned recipe. Gishurst Compound, gas liquor, mixed with one-third water, soapy water, or some other insecticide. The trees should be well syringed with clean water the next day. If one application has not the desired effect, and after the syringing aphides are still found alive, give them another dose. No trouble should be spared to clean the trees from these pests, which are capable of doing them so much injury.

These insects, fortunately, have many deadly enemies; they fall a prey to various carnivorous grubs, such as those of the ladybird, lace-wing fly, and the Syrphide (a family of two-winged flies), which eat large numbers of them. Several small ichneumon and cynipids deposit their eggs within their bodies, the grubs from which speedily destroy them. As is the case with most insects, in some years they are much more abundant than in others, and they make their appearance earlier or later according to the season. The first specimens which appear are those hatched from eggs deposited by the females in the previous autumn; these eggs will apparently resist uninjured any amount of cold to which they are likely to be subjected to in this country. The larvæ become fully developed into perfect insects in the course of a few days after they are hatched; they then begin to propagate their species, not, however, by laying eggs, as most insects do, but by producing their young alive at the rate, probably, of fifteen or twenty a day; these, in the course of five or six days become mature, and begin to reproduce at the same rate as their parents did. This being the case, the sudden appearance of swarms of aphides on trees is no longer a mystery, for if there was only one full-grown aphid on a tree one day, there would be twenty the next day, and 12,600 at the end of a week, if none were disturbed. Some of these insects are provided with wings, but most are without them; those which are capable of flight soon found new colonies on other trees, or on other parts of the trees already attacked. These insects go on producing their young alive until the autumn, when a certain number of females are produced which only lay eggs; these are not hatched until the following spring. Usually no males are to be found until the autumn, all the earlier broods being born without their presence. These aphides are much visited by ants for the sake of the honey-dew which exudes from their cornicles (the little tubes standing out from their bodies). If ants are seen in any numbers on trees or plants it may be taken for granted that such trees are attacked by aphides or scale insects.

The Peach aphid is not very particular as to what part of the tree it attacks; it is usually found on the leaves and young shoots, but I have found them on the young fruit and on the hard wood where a branch had been cut off, feeding on the softer part of the bark which was exposed. The three species which I have before alluded to have all been named *Aphis persicæ* by various authors; they are now placed in different genera, and the species now under consideration has received the specific name of *Amygdali* to distinguish it still further from the others. The perfect-winged insect (fig. 1) is about 1-10th in. long, and measures about $\frac{1}{4}$ in. across the wings when they are fully expanded; the colour of this insect varies considerably, some specimens being much darker than others. The head and thorax are generally dark brown or nearly black; the eyes are reddish-brown; the antennæ are composed of seven joints, and are of the same colour as the head, except the third joints, which are yellowish-brown. The body is yellowish, with four dark brown or black spots on either side; each of the first three or four joints are marked with a dark band, the remainder are covered with a patch of the same colour; the

cornicles also are nearly black; the legs are yellowish, with the tips of the joints and the feet black; the upper wings are large and slightly iridescent, with pale brown veins. The wingless female (fig. 2) is hardly 1-10th in. long, and is a much broader insect than her winged sister; it also varies very much in colour, some specimens being of a brownish-yellow, with various brown or black bands, others being nearly, if not quite, black, except the legs, antennæ, and eyes, which are of the same colour as those of the winged form. The larvæ are of rather a reddish-yellow colour; they change their skins several times; those which eventually become winged after a certain time exhibit the rudiments of wings, and are then in the pupa state; they are much of the same colour as the larvæ; the wings are greenish-grey; those, however, which are to remain wingless gradually assume the adult colourations and proportions. The insect in all its stages obtains its nutriment from the plants by means of its proboscis, from the end of which three fine hair-like organs are protruded, with which the leaves, &c., are pierced.

G. S. S.

THE FRUIT GARDEN.

FRUIT CULTURE FOR PROFIT.

Protecting the Blossoms.—It must be obvious that no one universal system of protection will suffice for all places; the climate of these islands varies too much. There are sheltered situations where the smallest amount of protection will make all safe; just a few small sprays of Yew with an old fishing-net hung over, to keep the wind from displacing them, is all that is required, and will be better than heavier coverings; but it would be the merest folly and presumption to say because such and such a thing has been very successful in one situation, it must necessarily be so elsewhere where the conditions are totally different; yet, making every allowance for the many varying circumstances under which fruit trees are grown, and taking a general view of the question, I do think that very often the protection does harm; it is in the nature of things that it should do so. The trees themselves are fairly hardy in our climate when planted against a wall; it is the blossoms that need protection, and the problem to be solved is just to give as much shelter as each case requires and no more. We may leave out of the question a glass roof, as that would remove the case to another category altogether. The first requisite in a wall is a dry surface; a wall that is always damp and green with Moss is not fit for fruit trees. Not only do damp walls act prejudicially upon the blossoms, but the wood in a dull, sunless summer does not ripen so well. Every wall should have under the grooved edge of the coping a small zinc gutter to carry off the water that runs from the coping and drips down on the trees. This drip in cold weather must be bad for them. When referring to the protection of Pears, I said something in favour of movable temporary copings that would fold back on the wall, and it is still more important in the case of stone fruits. What is required is protection from frost, cold rains, and winds from the time the blossoms open till May 10, and as during that time there are days when the weather is exceedingly mild and warm, permanent or immovable copings reaching far out from the wall must tend to weaken the trees and make them more susceptible to insect attacks. I don't consider any coping, whatever the material may be of which it is made, is perfect except it can easily be folded back when the weather is warm, for the trees to have the full benefit of exposure. Glass is a perishable substance and easily broken, and I have an idea that a light frame made to work easily on hinges in suitable lengths, and thatched with a single layer of reeds, would be cheap and effective. The reeds could be cut to fit the frame, and be secured with a thin lath. It should be made from 12 in. to 18 in. wide, to suit any locality, and might, I think, be easily secured to the stone coping. The misfortune of fixed copings of glass or wood is their tendency to weaken by over-protection. If a space was left between the temporary coping and the wall for ventilation the effect would not be so bad, but in any case I do not look upon fixed copings as anything but a makeshift, as I believe some better mode of protecting trees will be discovered if fruit trees are to continue to be grown in the open air. What we seem to want is something cheap, and what any ordinary machine can make. If we are to go

to the expense of glass copings, we might as well cover the trees with glass altogether, and feel safe at once, as the expense of glass copings, canvas curtains, and supports will go a long way towards paying for it; but, as I have already said, the thickness and character of the protection should vary with the locality. Why should any of us go to an unnecessary expense if we can secure a crop of fruit with sprays of evergreen or deciduous trees or shrubs and a few old fishing-nets hung over? and I know some who do; indeed, they oftener have a crop than do those who cover more elaborately; but then, of course, there may be something favourable in their locality; their trees may be possessed of more than average health and vigour. This, I believe, is true, and strong healthy blossoms will stand more cold than weakly ones. In looking at the question from all points of view it seems to branch off into a good many distinct issues, most of which are intimately connected with the general system of culture, and may be, I think, briefly summed up as follows: 1st, plant the young trees in a suitable border; 2nd, keep them free from insects; 3rd, give them water in dry weather, both over the foliage and at the roots; 4th, keep the young wood thin, so as to get it well ripened; and 5th, in spring adopt some cheap simple system of covering that does not coddle the trees, and which at the same time suits the locality; and lastly, keep the walls in good condition, so that they may always be dry and warm. I believe in the majority of situations a light movable coping 1 ft. wide, with a few sprays of Yew placed in among the branches of the trees, so that their feathery ends may project a few inches from the wall, will be sufficient, and in fact answer the purpose better than heavy curtains flapping about in the wind. Looking back at the time when flued walls were in operation, and noting the good crops of fruit then gathered from them, the idea constantly comes into one's mind, why have they been neglected? and why cannot we hark back to them again? Depend upon it, the step will be in the right direction, only instead of flues we should substitute hot-water pipes.

Select Stone Fruits.

APRICOTS.—Moor Park (the best for general planting), Hems-kirke, Peach, Oullin's Early Peach.

CHERRIES.—Bigarreau, B. Napoleon, Black Tartarian, Governor Wood, May Duke, Early Rivers, Knight's Early Black, Holman's Duke, Morello, Kentish.

PEACHES.—Royal George, Noblesse, Hale's Early, Vanguard, Grosse Mignonne, Walburton Admirable, Lord Palmerston, Broughton, Crawford's Early, Salway.

NECTARINES.—Downton, Elruge, Hardwicke Early, Pine-apple, Violette Hâtive, Pitmaston Orange, Hunt's Tawny.

PLUMS.—*Kitchen Varieties.*—Belle de Septembre, Victoria, Diamond, Early Prolific, Orleans, Goliath, Magnum Bonum, Pond's Seedling, Prince of Wales, Damson, Winesour. *Dessert.*—Transparent Gage, Green Gage, Golden Drop, Impératrice Blue, Jefferson, Kirke's, Reine Claude de Bavay, Washington, Angelina Burdett, Rivers' Early Favourite.

Propagation.

Peaches, Apricots, and Nectarines are best propagated by budding upon the Plum. There is some difference of opinion as to which is the best variety for the purpose, and I am not called upon here to decide the question as to whether the Muscle Plum, the Pear Plum, or the Brompton stock is best; perhaps for certain purposes and situations all are good, but the subject is too wide to be discussed in all its bearings here. Budding is a simple, easy process of propagation; any one can master its details, and it is not like grafting; there is not much fear of being too early or too late, as it can only be done when the bark will move easily. In budding the stock is not headed down, but a smooth place is selected at the proper height, preferably on the side furthest from the sun, so as to be removed from its drying influence. There are two modes of manipulating the opening in the bark of the stock for the reception of the bud; one is to make a perpendicular cut just through the bark, but without injuring the wood, about $1\frac{1}{2}$ in. or 2 in. long, lifting up the edges of the bark a little on each side to permit of the easy ingress of the bud and its shield of bark. The other method necessitates a transverse cut at right angles with the perpendicular line and about $\frac{1}{2}$ in. or so below its upper limit. The object of this transverse cut is to facilitate the operation of budding by permitting a little wider opening of the bark, and a rather freer,

easier insertion of the bud. The less the bark of the stock is mutilated the better, and that is undoubtedly the best system which permits of the operation being done with the least amount of injury. The buds should be selected from healthy, fruitful trees only, and should be sufficiently advanced without being too forward. The experienced budder can generally tell by the feel of the wood when the buds are suitable. The time does not arrive in all cases at the same moment, but there is a time when the young wood begins to lose the flexibility or elasticity of its early growth, and is gradually merging into the firmness or ripeness of autumn, and it is at this point when about midway between the two that the bark and the buds are generally in the best condition for removal. The buds must be carefully tied in with soft matting or soft material of some kind, which must be examined and loosened when the buds commence to swell—generally about a month or so after the operation has been performed. In nearly all cases the buds will remain dormant till the following spring, when, as soon as they begin to move, the stock should be headed down to within 2 in. or 3 in. of the point of insertion; as the young shoot springs rapidly up the projecting stock may be used the first summer for supporting it, by linking the two together with a bit of soft matting. Some care is necessary in raising the bark for the insertion of the bud, that the inner bark or cambium be not injured or disturbed, as success in budding depends chiefly upon the eye of the bud coming into close contact with and resting firmly upon it. It is also important in extracting the wood from the shield of bark surrounding the bud that the eye of the latter be not torn away, and to avoid this, the leverage or force should always be to the lower or base end; the stock must be neatly pruned away. All through the summer all growths upon the stock other than the bud inserted must be removed as soon as formed, and it may be desirable to pinch the young shoot of the bud itself when it has made a fair amount of progress in order to strengthen the base. Cherries and Plums are best grafted upon stocks of their own species in spring, though in their case also budding may be resorted to if grafting has been neglected or delayed too long. The Mahaleb is a good stock for inducing early fertility, especially for warm soils, and the Morello is not without its advantages. E. HOBDAY.

Wintering Pot Strawberries Out-of-doors.—I do not hear much said in praise of this system after the experience of the last few winters, but I hear many complaints from those who are compelled from lack of room under glass to adopt the plan as to the weakly condition of their plants compared with those that have had the friendly shelter of a glass roof. During the late exceptional winter we had a good many pot Strawberries packed in ridges of ashes, the pots being laid on their sides, and although the plants lost most of their old foliage they retained their roots well, and only being meant for late crops, they had plenty of time to recruit before being placed under glass. I would never, however, adopt this plan from choice, as although the Strawberry is hardy enough to withstand our severest winters, I am extremely doubtful as to the benefit it receives from having the foliage destroyed, as it must weaken the plants. I have no doubt that some sorts are much hardier than others; but, by way of experiment, I left a few dozen small pots of Sir Charles Napier out doors all the winter, where they were frozen as hard as stones for weeks together, yet they are all alive and healthy. Nevertheless, I certainly think it bad policy to have pot Strawberries exposed to severe frost. Plunged out-of-doors up to the rim of the pot will in wet seasons reduce the crop one-half, and if laid on their sides in ashes, so as to keep the superabundant moisture from their roots, they are considerably checked compared with those safely wintered in cold pits with dry leaves worked between the pots. Under such circumstances the roots never cease growing, and even late potted plants will continue to gather strength during winter, and will start with vigour in spring.—J. GROOM, *Linton*.

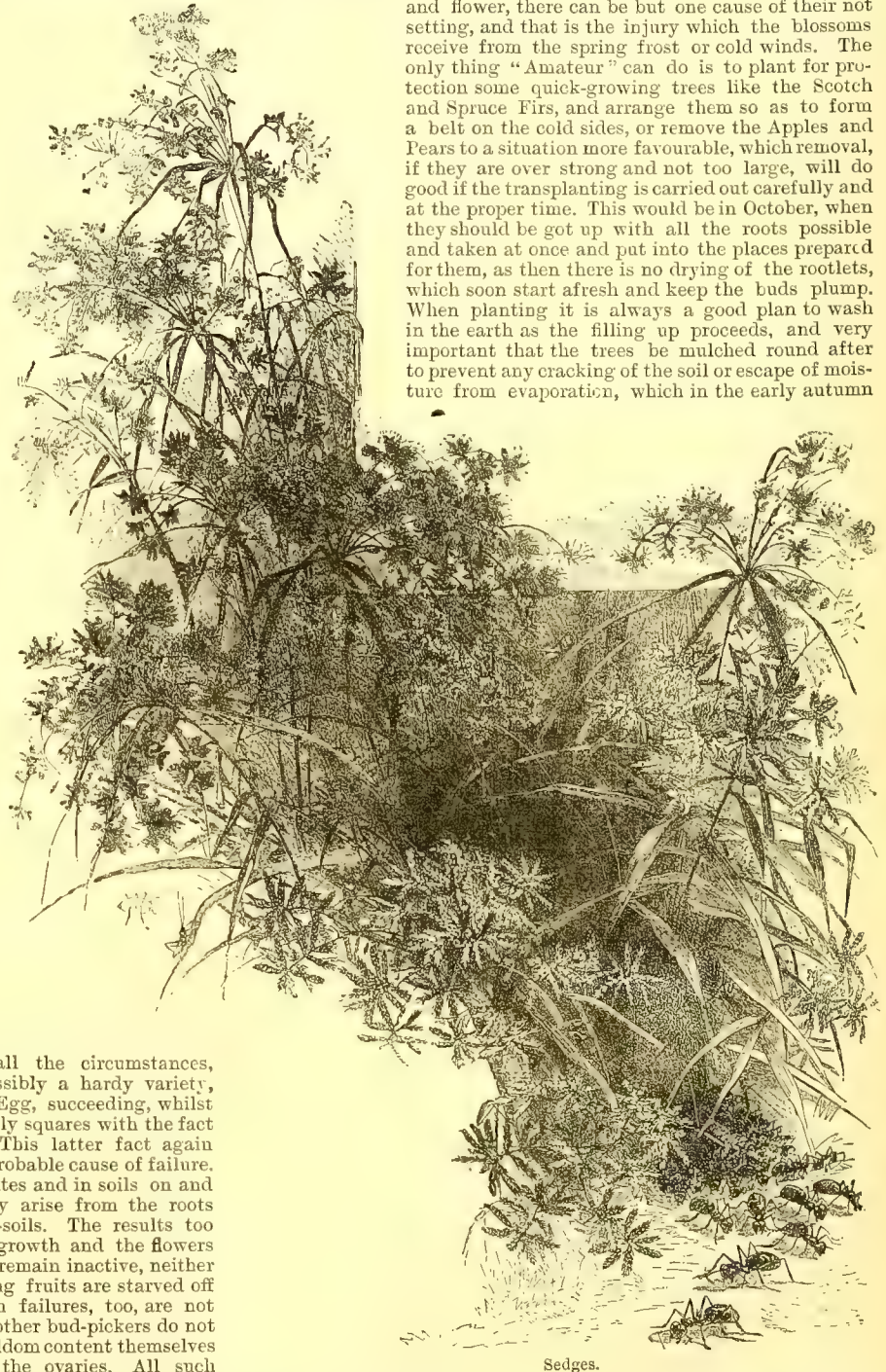
Ants in Fruit Houses.—These little pests are extremely troublesome when they get established in the borders of fruit houses, for one cannot destroy them without greatly disturbing the roots, by the ordinary method of pouring boiling water on the nests and trapping them with pans of treacle is a tedious method. They may, however, be greatly reduced by such measures if taken in time. We have lately had them attack some May Duke pot Cherry trees that had ripened a good crop in an early Peach house, and in such numbers did they swarm to these trees, that as soon as a fruit was attacked it was quickly cleared to the stone. After trying wadding soaked in paraffin and several other remedies, to no purpose, we set shallow tin trays under the pots and filled them with water, raising the Cherry tree on inverted flower-pots; this proved quite effectual,

and I can strongly recommend the plan in any similar case, although, as before stated, it is safest to anticipate their attacks by trapping them before they commence their depredations, as they are not very easily baffled, and with trees planted out this remedy could not be readily applied.—J. G.

An Appleless Orchard.—"An Amateur" complains (p. 476) that he has had no fruit for the last four years, and is anxious to know the reason why. The answer may probably be given in two words—spring frosts. Had these continued a little longer this season or become slightly more severe the year 1881 would have had to be added to the Appleless ones that have preceded it. The destructive effects of frost are not always visible at first sight. Frost comes and goes and the blossoms still look fresh and bright and gay. The fact is the petals of the flowers are, as a rule, hardier than the pistils or stamens; hence the former not seldom appear unharmed while the crop is already doomed to destruction. Consequently, when the Apple blossoms fall to the earth in showers the embryo fruit either falls with them, as described by "Amateur," or is found adhering to the trees for a time dead and shrivelled up. From the lateness of the blossom this season the Apple crop seems yet (May 12) still safe, notwithstanding these biting nor-easters and from 10° to 15° of frost most nights. But they are now in full bloom, and it is hoped a change of wind and weather may enable us to gather Apples in plenty this year. Never was the promise more brilliant. Should, however, "Amateur's" crop again go the frosts we have had will readily account for his failure, especially if he is in a forward locality. The following causes also tend to failure at times: The laying down of orchards to Grass that have previously been arable has a tendency to lighten or destroy the crops for a time; it is somewhat difficult to explain the reason why, but I have noted several such cases in my experience. The clay bottom may also have something to do with "Amateur's" failure. The effect, however, of the roots entering the clay is generally to reduce the number of fruit buds rather than to cause them to drop off or prove unfruitful. Possibly the elevation of the situation, the depth of the roots in the clay, and consequent coldness of the site, may cause the blossoms and embryo fruit to fall. This last guess which I make, for it is merely guess work, not being acquainted with all the circumstances, is founded on the fact of one Apple, possibly a hardy variety, and one very hardy Pear, the Moorfowl's Egg, succeeding, whilst all the others fail. But then this theory hardly squares with the fact that the two were fruitful when younger. This latter fact again seems to point to a cold spring as the most probable cause of failure. Still, young trees do fruit well at times on sites and in soils on and in which older trees fail. Such failures may arise from the roots getting deeper down into colder soils or sub-soils. The results too often are that while the tops start into growth and the flowers attempt to set their embryo fruits, the roots remain inactive, neither collect nor forward any food, hence the young fruits are starved off and fall, as described by "Amateur." Such failures, too, are not seldom traceable to birds. Bullfinches and other bud-pickers do not always drive the buds off bodily; they not seldom content themselves with picking out the pistils or wounding the ovaries. All such mutilated flowers are unable to set or swell into perfect fruit and fall off as described by "Amateur." One more guess at the cause of failure. "Amateur" says the situation is light; is it very much exposed to any prevailing winds and had the trees more shelter when they were younger and more dwarf. In some localities, a wood, a rock, a hill affords shelter to a certain height; but no sooner do fruit, or other tree, or shrub, overtop their shelter than they are stripped bare of fruit and even leaves, and blighted and blasted by

winds until they look almost as if they had passed through fire; but I would trust that nothing worse has happened to "Amateur's" Apple orchard than has befallen most of us, and that this year may yield him a good crop, though each night frost now threatens to add this to the many almost fruitless seasons that have preceded it.—D. T. FISH.

— If, as "Amateur" says, his Pear and Apple trees are healthy and flower, there can be but one cause of their not setting, and that is the injury which the blossoms receive from the spring frost or cold winds. The only thing "Amateur" can do is to plant for protection some quick-growing trees like the Scotch and Spruce Firs, and arrange them so as to form a belt on the cold sides, or remove the Apples and Pears to a situation more favourable, which removal, if they are over strong and not too large, will do good if the transplanting is carried out carefully and at the proper time. This would be in October, when they should be got up with all the roots possible and taken at once and put into the places prepared for them, as then there is no drying of the rootlets, which soon start afresh and keep the buds plump. When planting it is always a good plan to wash in the earth as the filling up proceeds, and very important that the trees be mulched round after to prevent any cracking of the soil or escape of moisture from evaporation, which in the early autumn



with a strong sun having such power goes on at a rapid rate, and fresh moved trees without protection soon suffer, as the bark shrivels and the contraction of the sap vessels follows.—S. D.

Planting Vines Out-of-doors.—Mr. Mitchinson is trying an experiment with Buckland Sweetwater and black Hamburgs out-of-doors and quite exposed on the system employed on the Rhine, viz., growing them on poles about 12 ft. high; what is wanted

is, of course, a hot summer. Will someone acquainted with Grape growing on the Rhine tell me what must be done after fruiting? and do the laterals require support? Any information will oblige.—
WILLIAM ROBERTS.

COAL TAR DRESSING FOR VINES.

"PEREGRINE" seems desirous of inducing your readers to believe that the dressing for Vines given in Carter's "Practical Gardener" is injurious to them. He has altered the statement in such a way as to mislead anyone who has not read the article in question. "O. P." (p. 444) has in no way overrated the mixture in quantity, but underrated it considerably. The recipe given in the "Practical Gardener" is: "Where bug exists, dress the rods with a pint of coal tar and six of water, adding clay and hot lime to the consistence of paint." As the writer of the article, I think I am justified in stating that making the seven pints already mentioned to the consistency of paint requires eighteen pints of clay or soil and lime to make the mixture suitable for adhering to the Vine. This I measured myself, therefore there is no vagueness about the matter. This mixture has been used by me for three years without the slightest injury happening to the Vines. On the contrary, they are most healthy, and not an insect is to be seen on them. I speak from three years' practice, but may I venture to ask on what grounds does "Peregrine" condemn? Many think that mealy bug cannot be cleared from a Vinery without the destruction of the Vines, but here is a case in point. I would not, however, recommend anyone with unhealthy Vines to use the tar remedy, *i.e.*, Vines in which life but exists, and which can scarcely withstand the light of day. Such are not the sort of Vines to try it on. Such Vines thrive best in the centre of the house where careful attention is not so much required. For the reassurance of anyone desirous of trying my remedy, I may tell them that I have used the tar double the strength named without injury, but the former will do its work effectually where you find coal tar only the 25th part of the mixture recommended. The tar used by me was taken from coal in the preparation of gas making, and I venture to say, where hair-splitting is not required, that coal or gas tar may be applied as stated in the recipe. It is a well-known fact that every gardener desires to avoid introducing bug if possible, and so it was with me; but on purchasing some evergreen creepers for the fronts of our houses, bug made its appearance upon them, and then took possession of the Vines before I was aware of it; hence the cure for the evil. As to smell, the proportion of other ingredients being so large, without an acute sense of smell no one could sniff a whiff of the tar; the third day after use the lime which I used in quantity left the Vines as near their natural colour as possible. Seeing is believing, and therefore I will be pleased to allow either "Peregrine" or Mr. Fish to see and judge for themselves.
J. HUNTER.

Lambton Castle.

— It is always advisable to be cautious in using any material for the destruction of insects that in itself is injurious to plant life, even when the material employed is so far reduced in strength as to be innocuous. And it is equally necessary to be careful not to give publicity to any remedy until its effects have been sufficiently proved; but if everyone had acted in accordance with the ideas expressed by Mr. Fish in respect to the tar-dressing, we should have yet had little chance of getting rid of the numerous insects that prey on cultivated plants, except by the slow process of catching them one by one. Cannot Mr. Fish see the folly of condemning an article which he has not tried, or even seen tried, or, as he admits, read the communication treating on the subject, or even made himself acquainted with what kind of tar was meant. Nevertheless, he rushes in to throw cold water on the prescription. It would be just as reasonable to condemn any, or all, of the various remedies that are in everyday use for freeing plants from injurious insects, because the active agent employed if used at full strength would kill the plants. Those who are content to wage endless war with such pests as mealy bug without ever fully conquering them may be satisfied with half-measures; but I for one am not, and when I wrote to substantiate what had been said of the efficiency of the tar dressing, I did so with a full knowledge of its use and results. As to mixing the ingredients, they are just as easy to amalgamate as oil with paint, as I have proved in preparing the mixture for dressing Apples for American blight and Pears for mussel scale, in both of which cases it is effectual and harmless, just as it is in that of Vines. It is impossible to grow plants or fruits as they ought to be grown when infested with such insects as mealy bug, and inexpensive effectual remedies like the one in question are preferable in every way to those which are more costly. Mr. Fish says he has known trees to be killed by the use of tar, which evidently must have been applied without caution or judg-

ment; but is that any reason why he should condemn its use when its strength is so much reduced by the admixture of other ingredients as to be wholly non-injurious? He might just as consistently inveigh against the use of steam because someone's carelessness had caused the bursting of a boiler, or eschew all medicine that contained poison however infinitesimal the quantity.
O. P.

GRACEFUL SEDGES.

AMONG the forms of plants that are least seldom used with effect in gardens are those of the Sedges and like plants. Certainly great numbers of them are not what we should call beautiful, and could never be of the slightest garden value; but among the immense number of plants of this and allied races that grow throughout cold and temperate countries, there are more beautiful things than are known to us in cultivation. Such as are known, however, are worth a place, and though they have not the charms of flowers in the ordinary sense, their grace and vigour compensate for this. Their home is by the water-side, but we should guard against placing them in what is called the bog garden, because they are apt to over-run it with their strong suckers; they should rather be planted in positions where they cannot injure other things, and where their graceful forms may be seen to advantage, as beside a streamlet. Our illustration is from "Pastoral Days." In certain cases pot or tub treatment might be tried, but it is apt to limit their growth; on the contrary, rich, deep soil is what is required. The following kinds are among the most interesting in cultivation, the most valuable being marked with an asterisk: *Cyperus longus*,* *C. virens*,* *C. esculentus*, *C. filiculmis*, *C. strigosus*, *C. phymatodes*; *Cladium Mariscus**; *Carex pendula*,* *C. paniculata*, *C. vulpina*, *C. riparia*,* and *C. acuta*.

NOTES OF THE WEEK.

Plants from Newry.—I send you a spray of a new *Leptospermum* raised here from seed, and so far as I know the only rose-coloured form (an important variety) in cultivation. The plant in a mass is very charming. I add the following: *Iris tectorum*, now in great beauty and valuable, as the flowers last several days, a property not possessed by all the group. *I. tridendata* and *I. balkana* have just flowered, but so fugaceous are they, one has no sooner begun to admire them than they are away. *Genista præcox*, now fountains of bloom sweeping the ground, is one of the very finest spring blooming shrubs we possess. We have also the miniature *Myosotis rupicola*, charming *en masse*; *Piptanthus nepalensis*, now bright on the wall, where it has braved the last severe winter, (a very old wall shrub in Ireland). Some varieties of the *Senecio cruentus*, now pretty at foot of wall planted out early; *Calceolaria violacea* very pretty, and two varieties of *Snowflake*, one bearing flowers closely resembling those of the spring form, but much taller and quite erect; whereas the other, and what I take to be the true summer *Snowflake*, has arching stems and pendulous flowers all on one side [one is *L. æstivum*, the other *Hernandezii*.—Ed.] A large mass here now, in which the two forms, and also a free admixture of Pheasant's-eye *Narcissus*, are in flower together is very fine. A good mass of the Wood Hyacinth (*Scilla nutans*) of the three colours, white, pink, and blue, all mixed together has a better effect to my mind than single clumps consisting of the separate colours.—T. SMITH.

Himalayan Rhododendrons at Kew.—Among those in flower in the temperate house since our last notes were made are *R. glaucum*, a pretty dwarf growing species with small thimble-like flowers of a deep rosy pink and small leaves, the under surfaces of which are of a glaucous whiteness; *R. cinnabarinum* *Blandfordiæ* form, with dense drooping clusters of long bell-shaped flowers of a rich yellow flushed with red; *R. niveum*, a large growing species with lurid purple flowers in dense heads, and leaves with white under surfaces; *R. hybridum*, a cross between *R. maximum* and *R. viscosum*; *R. calophyllum*, one of the largest kinds, with bold white flowers produced among the handsome foliage; and *R. Edgeworthii*, with singularly wrinkled foliage and lovely large white sweet-scented blossoms.

The Orange-flowered Trollius (*T. napellifolius*).—This very handsome hardy flower possesses quite an eventful history, for it is not only honoured with several names, but it has been distributed as a new plant on three different occasions. First, it appears it was introduced from Japan as *T. napellifolius*, a name which according to priority of date should take precedence; next it was sent out as *T. japonicus*, and subsequently as *Fortunei* fl.-pl., and it

is likewise known in nurseries and gardens under other names. One has, therefore, often to buy a new name instead of a new plant, which to say the least of it is very disappointing.

Aristolochia Goldieana.—This wonderful plant from Western Tropical Africa is about to flower in the Botanic Gardens, Regent's Park, there being four flower-buds in course of development, two of which will be expanded in a few days. The plant, though not large, is well grown, and to bring it into its present state has required considerable skill and attention. This is, we believe, the third instance in which this plant has flowered in this country, and those who take an interest in botanical wonders should not fail to see its flowers, which are among the largest of any in the vegetable kingdom. It is growing in the Victoria Regia house, and probably some of the flowers will be expanded at the date of the first summer exhibition on May 25.

Bird's-foot Violet (*Viola pedata*).—One of the prettiest of all Violets is this North American species which we have seen during the week in various nurseries and gardens. The typical kind has flowers about twice the size of those of our native Violet, and deep lilac-purple in colour, or blue shading off into a paler hue and even white—not pure white, however, but a tint having a delicate suffusion of pink, rendering it most charming. The handsomest variety, however, is bicolor, which is found wild, but sparingly, from Massachusetts to Maryland. It is much larger than the ordinary form, and the petals are arranged flat like those of a Pansy; the two upper ones



Bird's-foot Violet (*Viola pedata*).

are a rich velvety purple; three lower a delicate blush tint. In the typical form the flowers are produced plentifully, and the plants are free in growth in a light rich soil in partial shade, but the variety bicolor is somewhat fastidious and only succeeds in certain localities, and then needs special attention; but any extra care is well bestowed on such a beautiful plant. The annexed engraving shows a plant of the typical variety.

Bomarea Caldasiana.—There is a fine example of this beautiful twining Amaryllidaceous plant hanging from the rafters of a spacious span-roofed cool house in Mr. Joad's collection. It is bearing several huge and dense clusters of blossoms, in one of which we counted nearly half a hundred. The flowers are about $1\frac{1}{2}$ in. long of a deep orange inclined to red, and the interior is prettily spotted and barred with black. It is a most attractive plant and one that deserves to be in every greenhouse; it possesses an additional advantage, too, in thriving in a cool house with only sufficient artificial heat to exclude frost. It is planted out in a bed of free soil and produces thick rambling shoots which indicate robust health and vigour.

Passiflora kermesina and princeps.—In one of the stoves the roof is hung in graceful profusion with the lovely blossoms of these two Passion-flowers, which are among the finest of this handsome genus. The flowers of *kermesina* are rich carmine, and are hung on elegant slender stalks, while those of *princeps* are produced in long pendulous racemes, and, being of a vermilion hue, beautifully contrast with the other. These both have a long flowering season, *kermesina* in particular, which carries bloom throughout the summer into late autumn. In the same house is a grand plant of the beautiful leaved *Cissus discolor*, which occupies the entire back wall, and beneath are some planted-out *Caladiums* rising from a surfacing of *Fittonias* and other fine-leaved plants.

Chamærops Palmetta in Flower.—The large conservatory in the Botanic Garden, Regent's Park, is just now delightfully perfumed by the flowers of this noble Palm, which has produced a large head of its small yellow flowers on erect, much branched spikes, rising from the centre of the head of foliage. There are, likewise, several plants of *Cordyline australis* in flower, two of which, being particularly fine examples, with the huge feathery panicles of white flowers they have produced, are very effective. The Night-flowering

Cactus (*Cereus grandiflorus*) promises to be even finer this season than last, and will probably be in perfection about the time of the evening fête in third week of next month.

Pleione Hookeriana, a rare and pretty species, is flowering just now in the Kew collection and elsewhere. It differs from the other species of *Pleione* in producing its flowers along with the leaves, a character which gives it a much more finished appearance than that produced by the flowers alone. The small Damson-shaped bulbs are of a purplish colour; the leaves are deep green and plaited, and the flowers, which rise just above the leaves, are about 2 in. wide, the petals and sepals bright rose, and the scoop-shaped lip pale and blotched with brown-purple. It is found in the Sikkim Himalayas at an altitude of 9000 ft. to 10,000 ft., where it grows in abundance on the mossy trunks of trees, &c. It thrives well in a cool, light greenhouse, and at no time should it be placed in a warm temperature.

Cyclobothra pulchella in Pots.—This pretty Californian bulbous plant is a remarkably fine subject for pot culture, and as such it is grown very successfully in a cool house in the Regent's Park Botanic Garden. The singularly shaped flowers of a clear yellow hue, gracefully drooping on slender stalks, are extremely effective, and quite different from the ordinary style of greenhouse plants. Some of the other kinds are equally suitable for pot culture, particularly *C. alba* and *C. cœrulea*. The true *Calochorti*, however, do not succeed so well; indeed, they seem to be very fastidious under any system of culture. Another pretty plant in pots in the gardens just named is *Triteleia (Milla) laxa*, a Californian plant, of which we gave a coloured illustration a short time ago.

Magnolia Lennei.—This is probably the handsomest of all the spring flowering deciduous Magnolias. It is distinct from the others in having the rich deep purple of its large blossoms almost black at the base, then gradually lightening towards the tips. It is interesting to observe the great variety of shades of colour that exist amongst Magnolias, varying from the spotless white of the typical *M. Yulan* to the superb *M. Lennei*. It is now in flower in the Pine-apple nursery, Maida Vale. A beautiful coloured plate of it appeared in THE GARDEN, p. 548, Vol. IX.

Magnolia Lennei in Somerset.—There is now in flower in Mr. Scott's nursery, at Merriott, a magnificent specimen of this Magnolia. It is 15 ft. high and as much through, and must have upwards of 1000 flowers on it, which even at a distance are most effective. When full blown they measure from 7 in. to 8 in. in diameter, and the individual petals are $2\frac{1}{2}$ in. in breadth.—W. R., Merriott.

Andromeda pulverulenta.—Grown in pots, this North American shrub forms an extremely elegant object, quite out of the ordinary run of greenhouse decorative plants. Though old, it is by no means common, not nearly so much so as its beauty merits. It grows about 3 ft. high and forms a bush covered with small leaves of a pale glaucous green; the tiny bell-like flowers of waxy whiteness, much resembling those of the Lily of the Valley in size and form, are produced in erect racemes, which have a strikingly pretty appearance. It comes under the denomination of American plants, and thrives well in peaty soil. In the Pine-apple Nursery, Maida Vale, we lately saw a fine group of plants of it in pots in one of the cool greenhouses, under which condition they flower much earlier than in the open air.

The Display of Tulips in the borders skirting the avenue in Regent's Park has been particularly fine this season, and though past its best is still attractive. The blending of the masses of colour has been happier than usual, and the effect, as a whole, is very striking. The principal kinds employed are Kaiser Kroon, Cottage Maid, Yellow Tournesol, Royal Standard, Couronne Pourpre, Yellow Prince Brutus, and Joost Van Vondel, all excellent sorts and especially adapted for flowering simultaneously in masses.

Ranunculus speciosus.—This, one of the finest of the hardy perennial Crowfoots, is also known under the names of *R. grandiflorus* fl.-pl. and *bullatus* fl.-pl. Its flowers are perfectly double, and form quite a rosette of golden-yellow petals, which towards the centre assume a green shade. They are about $1\frac{1}{2}$ in. across, and several produced simultaneously on dwarf-growing plants have a fine effect in a border. It is now in flower in Messrs. Henderson's nursery, Pine-apple Place, Maida Vale.

Calceolarias and Gloxinias at Reading.—For some years past Messrs. Sutton have had an annual exhibition of these at Reading, and though the winter has been unusually trying for both classes of plants, the display of Calceolarias at the present time certainly eclipses that of all former years, not only as regards robust growth, but in the form and size of the flowers, whilst the colours are of every hue, from clear yellow to bright crimson. High culture has doubtless done much, but, apart from this, the strain is a remark-

ably fine one. As regards Gloxinias, many thousands are grown but I cannot attempt to convey any idea of the perfection of culture that has been attained; they must be seen to receive full justice in this respect. The earliest plants are now magnificently in flower, and the foliage is of such a width and length as to completely conceal the pots, and this, too, on plants raised from seed little more than twelve months ago.—W. W.

Hyacinthus princeps.—This is a companion plant, though an inferior one, to that noble bulbous plant *H. candicans*, figured in THE GARDEN a short time since. It grows quite as tall, the specimens in flower now at Kew being about 5 ft. high, but the flowers are much smaller and not of such delicate ivory whiteness as those of the other, though they have a similar bell-like form and droop in the same manner from the erect flower-stems. It is, like *H. candicans*, a native of the Cape of Good Hope, whence it was first introduced, we believe, by the late Mr. Wilson Saunders.

Calypso borealis.—With this quaint little terrestrial Orchid Mr. Joad has had exceptional success in his garden at Oakfield, where he grows it in a moist peat bed in rather a shady position. It has singular flowers resembling a bull's head in shape, and the colour is pale pink, blotched with a deeper hue. It is a rare plant in cultivation, but may occasionally be found in some of the best hardy plant nurseries.

Primula pubescens.—When well grown this is one of the prettiest of Primroses, and even under ordinary care it is a profuse flowerer and strong grower. At Handcross Park, Crawley, we saw a plant of it the other day in a pot with four flower-stems and just upon fifty blooms, forming a broad flattish head of a rich purple-crimson tint. It succeeds well in deep moist loamy soil, and best where the roots can be in contact with stone, which keeps them cool and moist in hot dry weather.

Phlox verna and Lithospermum fruticosum.—Amongst the numerous rockwork and border plants now in flower, I am this season specially enamoured with two kinds: these are *Phlox verna* and *Lithospermum fruticosum*, both of which have been in flower for at least a month past. Several patches of the former are at least 3 ft. across, and as seen on a steep bank growing over irregularly-placed boulders the effect is unique. The *Lithospermum* is shrubby and requires a deep soil, then it is in every way suited for rockwork. Its deep, rich, blue flowers are produced in as great a profusion as those of the *Phlox*, and the two colours, light pink and deep blue, harmonise perfectly.—W. H.

Alpinia nutans, an East Indian Canna-like plant of noble growth, is one of the most interesting plants in flower now in the Palm house at Kew. It is from 6 ft. to 8 ft. high, and its stout erect stems are terminated by upright spikes of blossoms which are large, helmet-shaped, with a yellowish ground, heavily pencilled and streaked with red. It is growing near the entrance to the north wing of the house.

Blandfordia flammea elegans.—This, we believe, is a seedling form which originated in the fine collection of these plants in the Pine-apple nursery, Maida Vale, where it is now in full flower along with one or two others. It is much superior to the ordinary form of *flammea* as regards colouring, which is much brighter; instead of a dull yellow they are a reddish-orange, and being produced in dense umbel-like clusters on erect stalks rising well above the grassy foliage they are very effective. The plants are growing in a cool house having a northerly aspect.

Columnnea schiedeana.—As this semi-climbing plant is grown at Kew in one of the compartments of the T range, it is very attractive and one that deserves to be grown in an ordinary way. The plants are in small pots, and the stems—about 1½ ft. high—are furnished with an abundance of singularly attractive flowers with red calyxes and long tubular corollas of the same hue, but copiously spotted and blotched with deep red, and gracefully hung from the under-sides of the branches. It is a capital plant for warm moist houses planted against a pillar, tree stump, or wall.

Carpenteria californica.—This extremely rare Californian shrub, which was figured in THE GARDEN, Vol. XVIII., p. 397, has survived the winter in the open air in Mr. Joad's garden at Oakfield, Wimbledon Park, and is now producing some healthy young growth, but we doubt if it will produce its beautiful white flowers this season. Another rare shrub which seems to have escaped uninjured is *Ungnadia speciosa*, also a beautiful Californian species allied to the *Pavias*.

A Three-flowered Tulip.—Mr. W. Ferris, gardener to the Bishop of Truro, sends us a fine specimen of one of the varieties of *Tulipa gesneriana*, bearing three flowers in various stages. The Rev. Mr. Nelson informs us that he has had as many as four flowers on one stem of *Tulipa sylvestris*, but that is a very different kind.

Houstonia alba.—This name is applied to an extremely pretty alpine plant, differing from the better known *H. cœrulea* in the tint

of the blossoms being much paler than those of that kind, but they are not a pure white, as the name would lead one to infer. In the habit of growth, size, and other characteristics it appears to be identical with *H. cœrulea*. It is in flower in Messrs. Henderson & Sons' nursery at Pine-apple Place, Maida Vale.

French Garden Produce.—Messrs. Draper informs us of an interesting fact as regards the great flow of French garden produce to this country. Their firm has paid recently during a single week for freight alone, over one line conveying produce from France to London, £1500. At the present season this is to a large extent Asparagus; over 2000 boxes of Asparagus have passed through Messrs. Draper's hands in one day.

We are requested by Mons. Vanderlinden, secretary of the Royal Horticultural and Agricultural Society of Antwerp, to give notice that an important International Horticultural Exhibition will be held at Antwerp on the 13th of August next.

WANTED—ENGLISH NAMES FOR FOREIGN PLANTS.

MR. H. J. ELWES, whose antipathy to English names is as yet unabated, writes to us under the above heading: "I see that *Arisæma triphyllum* is called the little American 'Indian Turnip' in THE GARDEN, and shall be glad if I can have English names for other species of the genus which are now flowering with me, as they are not yet christened, and are not included in the British flora or Gray's 'Manual of United States Botany.' I would suggest the following: For *Arisæma Sieboldi*, Siebold's Japanese American Turnip, or the Greater Japan Turnip; for *Arisæma speciosum*, the beautiful Sikkim Indian Turnip"—and so on through a number of species which he enumerates.

The answer is, that the name "Indian Turnip," quoted in THE GARDEN, is given after Dr. Asa Gray, a botanist whose knowledge and judgment are undoubted by all who know him. English names cannot and should not conform to the rule for technical ones, and it by no means follows that because the plant above named is called Indian Turnip in America, its allies in other countries should follow the same name, obviously given for local reasons. Let Mr. Elwes, who knows and grows the plants, give them fitting English names, that is, if they are likely to be grown or talked of by English-speaking people. We have English names for allied plants, "Lords and Ladies," "Dragons," "Lily of the Nile," Italian Arum, and no one is shocked that they are given on no such uniform plan as Latin names. It should be clearly understood that the practice of the best botanical authorities is opposed to Mr. Elwes' opinion in this respect, that the leading books in our language, old and new, give the plants English names; that the Kew authorities begin to see the need of these, and are rightly commencing to give English names a good place on their recently-written labels. The most influential papers and books in America recognise the need of English names more and more, and Dr. Thurber has recently christened a lovely plant (*Chionodoxa*) "Snow Glory," because he knows and says people likely to want and grow so beautiful a plant would find an impediment to its use and acquirement in a name to the public so awkward. Mr. Elwes is a scientific gentleman, but without sympathy for the thousands, even among educated people, who do not know, and take no interest in the technical language of plants. If he believes this knowledge, good in itself, he will best forward his views in that direction by first teaching people plants in language not wholly devoid of sense to them. The French and German writers on plants recognise the need of names in the ordinary language of their respective countries more fully than our own writers do as yet, and more progress has accordingly been made than here. As Mr. Elwes had said on a previous occasion that he had not read what Mr. Ruskin has written on the Latin nomenclature of plants, we hope to publish it in a coming issue. Meantime we would recommend the perusal of a little book, "English Plant Names from the Tenth to the Fifteenth Century," by John Earle, M.A., Professor of Anglo-Saxon at Oxford, in which there is, in addition to matter of much antiquarian interest, a well-expressed plea for an English nomenclature of the plants in cultivation in our gardens and parks.

The fact is, Mr. Elwes is yet in the stage we all experience when first feeling the charm of botanical collections. We ourselves, in the days when first enthusiastically searching out the treasures of botanic gardens, were equally impatient with any one who used an English name. We have no doubt that as time goes on Mr. Elwes' opinions on this subject will undergo a change, and that we shall one day find him of the same opinion as Dr. Gray, Professor Earle, and the many other wise men who see the folly of making the names of plants intelligible to one class of persons only, and that a very, very small one. In fact, we hope he will not grumble any more about English names, but send us some beautiful plants, each with an English name and a Latin one too.

GARDENING ON GRASS.

FROM the style in which "Peregrine" writes of the possibility of growing pretty spring flowers on Grass, one would infer that he has only recently discovered that it is practicable to do this. My earliest recollections, and they go a long way back, I regret to say, are associated with any quantity of Daffodils, Crocuses, Lily of the Valley, Primroses of various colours, the Wood Tulip, Cowslips, and Polyanthus innumerable on the Grass, and that in such a benighted region as the Hebrides; this was more than fifty years ago. At Bothwell Castle last week I literally saw acres of flower gardening on Grass. There I had also seen flowers in the Grass nearly fifty years ago. I asked Mr. Turnbull how long the banks about the old castle had been planted with such flowers, and he replied that he had no idea; they were there when he entered in 1828, that he had added to them during his time, but there were legions before. I saw two men filling a large basket with spring flowers to be sent to a benevolent lady who makes up bouquets for the patients in the Glasgow hospital; this, by desire of Lord Douglas, the proprietor, takes place weekly while flowers can be spared.

I notice the following amongst the plants on the Grass at Bothwell Castle, viz., Daffodils of sorts, Grape Hyacinths, Crocuses, Polyanthus, Primroses, Cowslips, Autumn Crocus, not at present in bloom of course, Snowdrops, Columbines, and great masses of the Wood Anemone, and farther back in the woods, which are mostly deciduous, a carpet of the wood Hyacinth.

I was much struck the other day when walking through the woods at Bothwell with the beauty of fine bushes of *Andromeda grandiflora* in full bloom, as if covered with snow—not a leaf injured, while Laurels and Hollies on either side were killed by the severity of the past winter.

I could give many other examples of flower gardening on Grass; a very pretty example of which I saw in an Apple orchard on the field of Bannockburn last week—masses of Daffodils amongst the Apple trees; this on a common farm. Gentlemen's parks in Scotland abound in examples of gardening on Grass.

Twined Vineyard.

WM. THOMSON.

EXHIBITION OF POT ROSES.

THE usual annual exhibition of pot Roses from Messrs. William Paul & Son's nurseries at Waltham Cross was held during last week in the Royal Botanic Gardens, Regent's Park, and was a source of great attraction. It was in no way inferior to those of former years; indeed, in some respects it surpassed that of last year. With the exception of some dozen or so of boxes of cut blooms, all the plants were in pots profusely flowered, and in every way in excellent condition. They consisted of a thoroughly representative collection as regards varieties. Among the more noteworthy were the delicate pink *La France*, with blossoms large in size and fine in form; *Celine Forestier*; General Jacqueminot, very finely represented; President, Niphetos, Dupuy Jamair, Baron de Bonstettin, Xavier Olibo, Paul Neron, Victor Verdier, and Camille Bernardin, all excellent sorts and especially suitable for pot culture.

The special interest of the exhibition, apart from the general display, was the collection of English-raised varieties, principally those distributed by Messrs. Paul from their nurseries at Waltham Cross. The queen of the newer kinds in the show was undoubtedly the Duchess of Bedford, than which few Hybrid Perpetuals of its colour surpass or even equal it. Its flowers are a rich crimson-scarlet overlaid with a satiny lustre and of large size, perfect in form, and in the half expanded state superb. Another fine Rose is *Pride of Waltham*, a kind with large full flowers of a delicate rosy-pink tint, shaded with bright carmine; such a charming colour, combined with a vigorous constitution, renders it a most desirable acquisition. Masterpiece promises to be a fine Rose, and the blooms shown on this occasion were finer than any which we had hitherto seen of it; these were large, globular in form, and of a rich rosy-crimson colour. We have not seen it out of doors, but it is said to be a vigorous grower. Crown Prince, a new variety, has bright purple flowers shaded with crimson, and it is said to be a very prolific sort, well adapted for growing or culture, and for ordinary decorative purposes. In *Red Gauntlet* we see another exquisite variety, particularly remarkable for the rich scarlet-crimson of its large full blossoms, and as a companion to this, *Lady Sheffield*, from the same raiser (Mr. Pöstans), is a beautiful introduction, one which will, as we have before remarked, prove a grand exhibition Rose on account of its fine form and bright rosy-pink colour. William Warden, *Souvenir de Mad. Robert*, and *Dr. Berthet* were like-

wise included in the collection, though not in a condition to report upon. Other Waltham Cross varieties of older date were also represented, and very beautiful they were; of these, the most noteworthy were *Magna Charta*, *Peach Blossom*, *Queen Eleanor*, *Princess Beatrice*, *Cœur de Lion*, *Princess Christian*, *Glory of Waltham*, *Star of Waltham*, and *Rosy Morn*.

Among Continental raised kinds were Ferdinand Chaffolte, one of last year's varieties, which was certificated a short time ago by the Royal Botanic Society. It is a large and full flower, deep red in colour, shaded with violet; with this were also *Catherine Soupert*, *Julius Finger*, and *Mad. Ducher*, all Continental kinds of last year, and likewise shown in fine condition.

LATE NOTES AND QUESTIONS.

Watering.—I wish that some of your correspondents would give me the benefit of their experience in this matter. We have had upwards of two months' dry weather, and, as a consequence, both vegetable and flower seeds are very backward in germinating; the fruit trees are now full of blossom. Should not all these be well watered? My own gardener advises me to let Nature alone in this matter, but I have an idea that Nature has an ugly way of her own sometimes, which results in the death of her offspring. I should state that our soil is a very light one.—DORKING.

Culture of *Crinum giganteum*.—C. W.—Place the bulbs in pots according to their size, using a compost of turfy loam and well-decayed manure, and enough white sand to make the whole friable. Then place the plants in a warm, moist stove, and supply them with abundance of water after they have rooted well, and if the pots could be placed near a tank so as to be partially submerged the plants would thrive all the better.—W.

Moving Roses in June.—Is this possible? I have a large number of fine dwarfs on the Manetti stock, and as I expect to move from this parish to another ere long of course I should like to take my Roses with me. They are growing well now, and some are showing bloom. Would it do to cut them within a few inches of the ground? and would they then make new wood and ripen it by autumn in their new quarters?—J. H.

Fungus.—J. S. T.—Your fungus is the edible Morel (*Morchella esculenta*). It varies considerably in form and colour; your variety is the cereus-tinted one, with a conical top, and small in size. The edible Morel is often 5 in. or 6 in. high, with a globular top, and yellowish in colour. For illustration and full description see *THE GARDEN*, Vol. II., p. 391.

Morel.—C. J. R., Bristol.—Your plant is the edible Morel (*Morchella esculenta*); *M. semilibera* is very different. You can see coloured drawings from Nature, by Mr. W. G. Smith, of all the British species of *Morchella* in the department of Botany, British Museum, South Kensington.

Purple Fig Marigold.—Can any one tell me the name of and when to procure the beautiful *Mesembryanthemum*, with flowers of bright purple, 2 in. or 3 in. across, which we see growing half wild about the railway stations, &c., in Central Italy? It must be very nearly hardy.—A. J.

Tomato Disease.—There is no reason to consider it a disease if it does not occur generally. It looks like the result of cold, or a check in nutrition. We will look more fully into the matter.

Strawberry Supports.—Are these really useful? Do they keep the fruit off the ground and free from slugs? If so, which kind answers that purpose best?—T. S.

Vine Leaf Excrescences.—These do no harm; they are merely the result of an overclose, damp atmosphere.

Horses' Boots.—R. C. Lincolnshire.—Apply to Messrs. Shanks & Co., 27, Leadenhall Street, London, E. C., or to any other mowing machine manufacturer.

Names of Plants.—Miss O.—The Iris is *I. cristata*; the Anemone is as you say.—*E. Molyneux*.—1, *Kerria japonica* fl.-pl.; 2, *Caltha palustris* fl.-pl.; 3, *Narcissus poeticus* (variety); 4, *Cheiranthus* a pin; 5, *Saxifraga granulata* fl.-pl.—*G. J.*—*Fritillaria pyrenaica*.—D. B. C.—We could not name the *Oncidium* flowers you sent.—A. B. C.—1, *Exochorda grandiflora*; 2, *Arthropodium cirratum*.—F. R. M.—1, *Cornus*; 2, *Saxifraga hypnoides* var.; 3, *Cerastium alpinum*; 4, apparently *Linnaria cuneata*.—M. E. G.—*Pteris longifolia*. The pale green one is *Phlebodium aureum*; the *Cyperus* is *C. laxus*.—J. M.—*Heliborus viridis* (true); *Alyssum saxatile*, *Iberis Garrethiana*.—W. H.—1, *Cereus speciosissimus*; 2, *Aspidium falcatum*; 3, *Mesembryanthemum* sp. (cannot name without flowers); 4, *Begonia argyropsila*; 5, *Pulmonaria mollis*; 6, *Begonia Evansiana*. Send the others and we will endeavour to name them for you.—Mac.—1, *Narcissus poeticus*; 2, *Veronica Chamædrys*; 3, *Narcissus poeticus* fl.-pl.—W. H. H.—*Tiarella cordifolia*.—L.—1, *Arctium Lappa* (Burdock); 2, *Conium maculatum*; 3, *Arum maculatum*; 4, *Alliaria officinalis*. Send others when in flower and attach numbers to each.—T. Cleves.—*Hemerocallis fulva*.—Mrs. Day.—*Begonia glaucophylla*, *Tropæolum tricolorum*.

Insects.—Dr. M.—The insects you forwarded are the pupæ of a two-winged fly, probably a species of *Sargus*. The larvæ feed on decomposing matter, and the flies are slender in form and brightly metallic in colour.—G. S. S.

J. M., Clonmel.—Your Roses are attacked by the grub of a sawfly. Several species of these flies infest Rose trees, but from the specimens enclosed I cannot give the specific name. Pinch all the leaves attacked, and shake the bushes over an open umbrella or cloth; if many of the flies are about, catch them in a butterfly net. They fly heavily.—G. S. S.

R. K. W.—*Otiorynchus sulcatus*. As this insect is a night feeder, shake the leaves over a white sheet after dark. The grubs of this insect are very destructive to the roots of many plants, which they usually attack just below the crown.—G. S. S.

J. M. K.—The flies you forwarded are *Rhingia rostrata*, a very common insect; as far as I am aware, its presence in the gardens and fields is neither harmful nor beneficial.—G. S. S.

Mealy Bug.—Will some one kindly give us their experience as to the best mode of destroying mealy bug on Grapes? I have had a little of it at one end of my early Vinery for two seasons. Last winter I had the Vines well cleaned and painted; the house, too, had three coats of paint, so that I thought I had seen the last of the bug, but now, just as my Grapes are beginning to colour it has shown its head again; it is at present confined to the warm end of the house. What I want to know is, how can I get rid of it with the Grapes at this stage without injury to the fruit?—ENQUIRER.

Books.—W. E. G.—"Cottage Gardening," by Hobday.

"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare*.

GARDEN THOUGHTS.

For some weeks the writer of "Garden Thoughts" has been prevented by his work from expressing them to those brothers and sisters who read THE GARDEN, and now they come in crowds to his first leisure like poultry of all denominations, from the peacock to the bantam, at the call of some dilatory henwife who has kept them waiting.

Nigh unto the Land's End, and walking in the garden of the Bishop of Truro, I thought that a bush of *Escallonia macrantha*, standing boldly and without protection on the Grass, had reached an amplitude worthy of annotation, and Mr. Ferris, the gardener, produced his tape and measured the circumference—68 ft. It must be very beautiful when its red flowers glow amid its lustrous dark green leaves, and is always one of our most cheerful evergreen shrubs, weather permitting. Here, in the midlands, at all events in that part of them from which I write, and in which we had 15° of frost on the 10th of this month of May, it ekes out a precarious existence, even when planted by a wall. Not far from this *Escallonia* there is an *Ilex*, of which the trunk is 18 ft. and the circumference of the branches 186 ft., a dwarf amid some of its brethren abroad, but a fine fellow in his own diggings.

And in the flower beds, which were wearing the bright raiment of spring a fortnight before our borders hereabouts could be raised from their winter sleep, I saw the triple Tulip (*Gesneriana*), which was subsequently sent to THE GARDEN, and is noticed at p. 535. The three flowers on one stalk reminded me how St. Patrick exemplified the great doctrine of the Trinity in Unity by showing to his Irish converts that Trefoil, which, as the green immortal Shamrock, remains their national emblem.

In small lodgings at Truro, that I might be near my work (addresses and sermons daily), I had a pleasant proof of that genial sympathy which animates our floral guild. My little parlour, which commanded a near and full, but somewhat monotonous, view of the scaffolding of the new cathedral, was brightened and perfumed by three fresh blooms of *Maréchal Niel* Rose, sent home as the first produce of the tree by a lady resident in Truro, unknown to me even by name. And then came a box containing some grand specimens of *Roses*, which contrasted beautifully with the golden *Maréchals*, and which, though they had travelled from Guernsey to Caunton and thence to Truro, still retained their full size and symmetry and their deep rich crimson tints. They were the first flowers I had seen of Climbing Charles Lefebvre, and the description which the donor, Mr. E. Peters, of The Gardens, Somerset Terrace, Guernsey, gives of the parent makes my mouth water (rose-water, of course) to possess it. The blooms were cut, he informs me, from a tree which is grown in a large span-roofed greenhouse, and makes a growth of from 15 ft. to 20 ft., flowering freely. *Gaudete sodales!* Surely a wall covered with Charles Lefebvre and *Maréchal Niel* in the middle of April will leave nothing for the Rosarian to desire, except a robust climbing Marie Baumann with flowers as white as snow.

So always, and go where he may, the gentle gardener shall find genial friends, and, though he has left his apron at home, shall be recognised and welcomed by the craft, just as we freemasons realise our brotherhood, however far we have wandered from our lodge. This I found to be specially certified, as regards the former fraternity, in those fair gardens of the duchy of Cornwall which it was my happiness to see; and good reason had I to endorse the statement of the old historian, Diodorus Siculus: "The natives of that part of Britain which is called Belerium, to wit, the Land's End, are not only hospitable, but civilised in their living." Accordingly, when I had finished my work, and, setting forth on a bright, sunny morning for a holiday, with the glad conviction that I had earned it, had strolled for a couple of miles on the banks of the Fal—vessels from Norway unloading their great beams of timber on the right, and great bushes of golden Furze and silver Blackthorn showing on the left—I saw on the opposite bank of the ferry at Malpas (pronounced, with a supreme disdain of its French appearance, Mopus) a brother, whom I hardly knew beyond the repute which he has won in the floral world, waving a preliminary welcome, to be completed, on my landing, with hand and heart.

He drove me through the woods of Tregothnan, which must be charming indeed to sight and to scent when the Honey-suckles, which climb to the very top of the trees, are in flower and fragrance, and which were charming then in their early leafage, and with their Primrose carpet below. And he showed me Tregothnan itself, the stately house and spacious gardens, with the Camellias growing freely and flowering abundantly, as climbers on the walls and as shrubs in the open air, much as you see them in Southern France and Italy. Laurels also grown into great trees, and on either side of the broad drives and walks, with a wide margin of Grass intervening, the Rhododendrons! Then, for the first time, I saw these trees in their glory, beautiful pyramids, 15 ft. to 20 ft. in height, and covered from base to crown with great trusses of white, and roseate, and crimson, and purple flowers. The taller trees of the shrubberies made an admirable background, and here and there the snowy blossoms of the Cherry a most pleasing contrast. There is a grand old Cork tree and many fine Conifers, perhaps the best specimen of *Torreya myristica* in this country, and the most amiable *Amabilis* I ever saw.

Then, if I may diverge a few hundred yards from the garden, we saw the famous "Devons," small in stature, but thorough-bred, solemn, graceful in demeanour, as though they traced their pedigree to the sacred bulls of the Brahmin, faultless as to symmetry and condition also; in short, just such as you would expect to see in the yards of the Lord of Tregothnan, acknowledged, as he is, to be one of the best, if not the best, of our judges and breeders. As we gazed on these beautiful animals, and as they gazed on us, I became suddenly self-convicted of a life-long mistake and injustice. I had always considered that our old friend Homer displayed a melancholy proof of his defective vision, and illustrated the statement,

Aliquando bonus dormitat Homerus,

when he called the belles of the Iliad ox-eyed, *βοῶπις*, but as I looked into the large, bright, expressive orbs of these pretty Devons I began to think that the old gentleman was right.

Then, as we walked from the park to the rectory, my companion showed me, 1 mile to our right, the supposed site of the tomb of St. Geraint (Gerentius), and told me how, during the excavations of the antiquarian, they found withered

bunches of flowers supposed to have been placed, as we place them now, in the grave, and how he collected the seed and sowed them in his garden, and these sleeping beauties woke up after a trance of thirteen centuries, to wit, since the days of King Arthur, and produced the same wild flowers, which ever since then, and I know not how long before, have sprung from Cornish soil.

Believing in Eden as thoroughly as though I had seen it, as undoubtedly as though no elegant and clever sceptic, lighting his cigarette, after a costly meal, before the excitement of his rubber, had ever sneered at my simple faith; believing that our love of horticulture and our happiness in a garden are reminiscences of our first glorious home, and longings to reproduce it; liking those gardens best which seem to instruct us most convincingly how, by a great love and a long labour, we may change Paradise Lost to Paradise Regained, in which refined taste, and skilful culture, and continuous work are patiently striving to eliminate that which is noxious and unsightly, and to replace it with all things pleasant to the eye and good for food. I shall never forget that "goodly place and goodly time"—the garden at Lamorran—and the joyous hours which passed so quickly there. It is indeed "a garden wild, but not without a plan," and that plan is to combine and blend Nature with art, imports and home produce, so to diversify and surprise without incongruous or too sudden change, that the eye of the visitor should never weary, and that his steps, though upward, should never tire; but that increase of appetite should grow with that it fed on, and sigh, with the French lover, *trop n'est pas assez*.

And it is marvellous to see, and all negligent gardeners should be shown or told, how much a master-mind, with only one fellow workman—not an artist—can realise and maintain. There seemed to be in that extensive hill-side garden not only everything which we gardeners love the most, trees, evergreen and deciduous, notably the Sikkim Rhododendrons, the named hybrids raised by the owner, such as the lovely Lady of the Lake and Rose of Falmorren; graceful Palms, such as *Chamærops excelsa*; also *Paulownias* and *Bambusas*; Conifers in their full grandeur, so happy that they grew self-sown; and I noticed a robust young *Pinus insignis* which had started business on his own account, and was thriving prosperously; not only are there flowers of all denominations—alpine, herbaceous, or shrubs, from bulbs, vernal, æstival, autumnal, and hybernal, Lilies from minimum to maximum (*giganteum* 12 ft. high), for Mr. Boscawen was one of the first who grew them *al fresco*; not only to this charming site, which commands exquisite views of the river below, and of the Oak woods beyond, and to this genial climate, in which the *Lapageria* flourishes on his walls, and the standard Peach tree fruits in the open, has he brought all things bright and beautiful, but he has arrayed them with a consummate grace of congruity; there he holds his own against all comers—slugs, rabbits, hares, outlying deer, ungenial seasons; and there he has established, and long may he enjoy, the most perfect example of a wild garden, which, as I believe, is to be found in England. S. R. H.

Pugilistic Toads.—I always keep a number of toads in my Orchid houses, for the purpose of destroying vermin. The other morning, while watching two males, I was highly amused to see them have a regular set-to fight. They went at each other in a regular scientific manner, sparring and boxing each other with their fore paws, and butting with their heads. After a while they seemed to get tired, coolly sat down, and viewed each other with great complacency. From my earliest days I have been in the habit of watching the ways of the toad, and, never having seen them fight before, would like to know if any of your readers ever witnessed such a scene. —ALEX. PATERSON M.D., *Bridge of Allan*.

EDITOR'S TABLE.

A noble series of Indian and other Rhododendrons from Argyleshire (Stonefield, Tarbert) is suggestive of the curious differences in our climate. The single rosette of leaves of *R. Falconeri* is over 1½ ft. in diameter, and the flower-truss consists of twenty fine cream-coloured bells. It is strange that plants which would have no chance of escape if planted out-of-doors in many parts of the southern counties should thrive so far north, and in a climate where one would not expect the wood to ripen. Mr. D. Robertson reports the bloom of the best to be now nearly over, and says the effect produced has been very fine for some time past. The following are among the kinds that have flowered at Stonefield without even the protection of a Spruce branch, viz:—

<i>Falconeri</i>	<i>Thomsoni</i>	<i>Edgeworthi</i>
<i>arboreum</i>	<i>barbatum</i>	<i>glaucom</i>
<i>arboreum album</i>	<i>fulgens</i>	<i>Gibsoni</i>
<i>niveum</i>	<i>Wallichii</i>	<i>candelabrum</i>
<i>cinnamomeum</i>	<i>ciliatum</i>	<i>setosum</i>
<i>Campbelli</i>	<i>Roylei</i>	<i>pumilum</i>
<i>campylocarpum</i>		

The fresh blossoms of the flowering trees in myriads, wherever they are stately and varied, lead one to suppose this to be the week of their greatest beauty—Horse Chestnuts, Medlars, Red Chestnuts, Pavias, Magnolias, Lilacs, Hawthorns, Cherries, Laburnums, Mountain Ash, Quince, later *Mespilus*, later Apples, being in flower. No less lovely are the various shades of the young green, seen in different lights, and where there are many big trees and some variety. These, with the noble glow of the Rhododendrons, tend to make one a little oblivious of our smaller friends which cheer the days of the early year long before most trees are awake. After a walk in Kensington Gardens, the better part of Kew (the tree part), through Windsor Park and round Virginia Water, I felt that in the presence of so much of the stateliest life the less said about the rock garden and our small friends generally for one week or so the better. But a visit to Mr. Whitehead's rock garden (May 24) showed that injustice had nearly been done to the no less glorious flora of the rocks and hills, for a braver show of colour could not be seen on hill or dale than that of the alpine Wallflower (sheets of rich yellow); Blue Creeping Gromwell, as thick with blue cups as a hive with bees; alpine Forget-me-not in lovely colonies; white and pink Mountain Phloxes, the white in groups like snow seen in the evening light; dwarf yellow alpine Pea flowers (*Coronilla*) forming carpets of green and gold on the rocks; the Garland flower (*Daphne Cneorum*), Mountain Avenas (*Dryas*), *Aubrietias* still rich and dense in colour; in quiet nooks and running up the rocks, the Creeping Sandwort (*Arenaria balearica*); evergreen Candytufts, bold in their profuse white bloom, particularly *I. coraeifolia*; Thrifts full of bright rose; Saxifrages in myriads; Rock Soapworts (*Saponaria*) full of bright rosy pips; the Glacier Pink (*D. glacialis*) with its rosy blooms; the Rock Roses (*Helianthemum*) in various colours; the alpine Flax (*Linum*); various alpine Hairbells (*Campanula*); the yellow Rock Saxifrage (*S. Cymbalaria*); elegant little Cranesbills (*Geranium cinereum* and some *Erodiums*; a sturdy charming white Buttercup (*Ranunculus parnassifolius*); and the purple alpine Milkwort (*Polygala Chamæbuxus* v. *purpurea*), and richly coloured American Cowslips (*Dodecatheon splendens*). I have spent about fifteen years in various journals and in several books endeavouring to root several simple ideas about rock gardening, i.e., that a rock garden should not be a dusty wall of scoriæ or other rubbish, but a deep and moist spot of stony ground; that twenty-five stones are usually seen and used where one, well placed, would have a better effect; and that

the most brilliant and interesting of all plants are easily grown, but not on dust heaps. It has been laid down in botanical horticultural writings without end that these plants could not be grown in our gardens, whereas their culture is simple. As Mr. Whitehead grows them, they reveal to us the most fascinating kind of flower garden yet seen.

From that fine old Azalea ground at Osborn's, at Fulham, in which the Azaleas are so rich at this season, come bright blooms. They remind one of the pictures they make when in flower in the mountains of the Southern United States. At Osborn's they had always room enough to show their forms. In many cases old Azalea bushes do assume a fine broken form, never visible while they are overcrowded. Among the many varieties that are grown one would like to see the several original American kinds from which they were raised if these are now obtainable.

Among common shrubs the soft yellow flowers of the common Barberry and its varieties and allies from various cold countries are very welcome at this season, although not showy. The purple form of the common Barberry is more interesting than usual at the flowering season. The common Barberry is worth growing for several reasons—its delicate grace in spring, brilliant rain of fruit in autumn, and the presence of a shrub that fears no winter, and assumes a good form when allowed to do so. In our botanic gardens there are a good many summer-leaving *Berberis* allied to the common one, but not very different from it. The Chinese one is a little earlier and dwarfer. But those who treat the common one fairly, either on bank, lawn, or shrubbery, will have a fair representative of the group, while those loving variety may try a few other kinds. The evergreen ones seem much more popular.

Among uncommon trees flowering at this season the little bells of the Snowdrop tree (*Halesia*) are rarely seen in the cut state, or, indeed, at all. It is singular that a tree so graceful and peculiar should be so much neglected. It is very rare to see a good specimen, or any specimen on the lawn or in a choice group—perhaps because of its modest, inconspicuous look at some distance off, or because it will not live long in the choke-muddle shrubbery.

Globe-flowers, like other things, this year have suffered from drought, and are not so sturdy and handsome as usual, but some sent by the Rev. Wolley Dod were splendid in their size and richness of colour, the "globes" in some cases being over 2 in. in diameter. If we are proud of anything, it is in securing these neglected flowers a home in our gardens. Some years ago not one could be seen, though for hardiness and bold and handsome flowers, and even for the form of well-grown plants, nothing surpasses them. They may be grown in any moist soil in or out of the garden. Indeed, they will grow in any soil, but in starved and poor soil they are very different from what they are in deep and rich or moist soil. At Kew they are wretched. No one ever got an idea of their beauty there. A colony of them in the grass in the moist soil near a streamlet, or near water of any kind, would be very fine and give no trouble. Some drop their petals in travelling, but once safe in a glass they are very effective in a room. Mr. Dod says, "This year they have been stunted through drought and east wind, and are little more than half their proper size, but I send the best I can of three sorts, the European, the Asiatic, and the American, the latter only just beginning to flower. The Japanese Globe-flower I cannot send, for, as usual, it is quite withered up by frost."

Early Phloxes, which, when well grown in bold tufts, and not merely thrust into pockets, to be starved in dust or hidden by stones, are alone able to embellish brilliantly the rock garden. *P. divaricata*, from Mr. Wolley Dod's garden, is very elegant, with its many curiously-rayed flowers of a lilac hue.

From "a garden above Ullswater, 780 ft. above the level of the sea," some unknown correspondent sends unusually large flowers of our old cottage garden friend, the double *Kerria* and some alpine Poppies. What a happy place in which to grow alpine flowers! Let us hope that a large variety may be added to, if they do not already grow in, this garden in one of our most interesting mountain districts. No scarcity of stone or rain there! With such opportunities what mad rock gardeners many of us would become! Will anyone put a few tufts of the little creeping Rock Sandwort (*Arenaria balearica*) against a few moist rocks in such a district? If so, it will add a new charm to the hills, with the mantle of green and white with which it so gracefully clothes the rocks.

One of the fairest flowers of this time of flowers is the Buckbean, a large bunch of which comes from Mr. Wolley Dod. It is one of our native plants, worthy of a place in every garden, and not difficult to please, as it will grow in any ditch or pond or moist spot, or tub sunk in the ground, or river margin, and, failing all these, in a bit of moist ground anywhere. Mr. Dod says, "Most of our field ponds now look as if they had been bedded-out with Buckbean and Water Violet, beautiful flowers which do something to make up for the discomfort of living on clay. The former is scarce in the south, and I send a bunch of flowers; the other is common near London, and the flowers do not carry well."

Now so many alpine meadows are dotted with the delicate Lily-like blooms of the St. Bruno's Lily, it is pleasant to see it getting pretty well established in our gardens, and right well its silvery white and crimped flowers look on the table. It, like many of the plants mentioned in these notes, is well worth growing for cutting if for no other reason.

Mr. Wolley Dod says of a plant now very much sought after for the best cut-flower work in Covent Garden: "I make up with a few flowers of my prettiest weed, the double Poet's *Narcissus*, which thrives in the native clay in any corner. I put in two or three leaves of the Lesser Meadow Rue, of which the stock was brought from the mountains of North Wales, to show what it does when planted in a damp garden." [An elegant plant, which will grow in any spare corner.] "I forgot to mention the Aconite-leaved *Ranunculus* (Fair Maid of France), a plant which grows well on this strong soil. The flowers sent are one-tenth part of the produce of one plant."

The day after Mr. Hawkins' finely grown Lily of the Valley came, with spikes of white 5 in. long, another Lily, but a very different one, came in the shape of the Black Lily of Kamtschatka (*Sarana* or *Fritillaria*), with nearly black rich buds and bells on Lily-like stems with whorled leaves. It offers a curious contrast to the Lily of the Valley in the same jar. With it came two of the new and good blue hardy bulbous plants (*Ixiolirion tataricum* and *I. montanum*), both of which promise to be very good plants when well grown. One (*montanum*) is a beautiful purple, the other pale mauve, both agreeing in having singularly pretty ribbon-like and parallel veinings of deeper blue or purple down the centre of each division of the flower. Whatever their fate may be in the

open garden, they are certain to please when seen near in the cut state. With these good plants, sent by the new Plant and Bulb Company at Colchester, comes also the white variety of *Anemone palmata*, not in these specimens so large or so good as the yellow form, the usual one.

From Colchester also comes the quaint *Trillium recurvatum*, with marbled leaves and dull crimson centre, and the American hardy Lady's Slippers (*Cypripedium*—several species) in bloom.

It is pleasant to notice that while flowers generally in the hot dust of London soon wither up, especially after travelling long distances, some open their eyes and their buds fresh as ever. They seem to take a new departure and open as bravely as if in the open air. Among flowers that do this it is odd to see the forms of the Iceland Poppy (*Papaver nudicaule*), some coming from Devonshire, and a fine orange one from Miss Jekyll. We are accustomed to think of Poppies as the most fugaceous of flowers, but in a cut state this one seems, like some bulbs, to be able to bloom well with what nutriment is left in its slender stem. The flower is lovely in form, and in the crimping and plaiting of its satiny-yellowish and orange tints. In the morning, at least, the flowers of this Poppy have a scent like that of ripe Bananas—one of the flowers that must be grown for cutting. To place a few of its buds and blossoms in a dish and watch them for a day or two is to get a new idea of the world of beauty, that even those who grow the plants only see afar off, as it were. Among others that do not seem to expire too soon in London are Primroses, Banksian Roses (from Gorey, in Ireland), Woodruff, Tulips, which, cut early, bloom bravely and long; Scillas, Snowflakes, like most bulbs, resolved to open the last bud; the Quamash root (*Camassia*), the elegant buds of which are all to the top of the spike gradually transformed into blue stars with golden satellites (one may know this plant long out-of-doors without seeing its peculiar charms as one may if a few spikes are placed on the table in a small glass); Buttercups, especially that great double one, Narcissi, Spurges (*Euphorbia*). The Apples from Sussex remain beautiful for a considerable time, suggesting that we might more frequently adorn our houses with cut branches of the more beautiful flowering fruit trees. Cutting in the bud or early blooming stage would tend to prolong the beauty of such glorious flowers, and at all events bring them nearer to us, so to say.

A Pansy (Novelty) among a lovely series of 30 bunches, each of a different kind, violates all the proprieties of the florist, for instead of the colour following the set lines of the florist, or even those not tied by his rule, it is in flakes on a creamy ground, like little clouds in a calm sky. There is much to be done in this way among our popular flowers in getting distinct races from any hitherto allowed. This *Viola* or Pansy Novelty, for example, suggests a whole series of Pansies with this characteristic of clouds and cloudlets of colour, no two alike, on different coloured grounds. There is also much interest in a series of bold little Pansy-like *Violas*, said to be from an Austrian species; Nugget and *stricta aurea* being rich little dabs of golden colour, the last with an orange centre. These little golden Pansies will charm all who grow them; they are included among bedding *Violas* for no particular reason, as they would be even more valuable as colonies or tufts between Roses, as surface plants through which tall bulbs and graceful or slender plants may rise, as colonies on the margins of beds of shrubs, as flakes and nests of colour in those parts of the rock garden where free-growing plants are placed. The rich, unrivalled colours

of the self Pansies are delightful, even after their journey from Edinburgh, where to enjoy them in all their fresh charms one ought to see them in masses in the nurseries of the Messrs. Dicksons, whose house is in Waterloo Place. There is quite a bright series of yellow Pansies and Violets, which set together on the table in small violet pots, or grouped in the open air, are exquisite in their harmonies of colour. Among those yellows, Brilliant, Golden Seedling, Royalty, Lizzie Stewart, and Canary are very handsome and rich in colour, apart from the little yellow and golden Pansies before alluded to.

Again comes the exquisite green Columbine (*Aquilegia viridiflora*) with an odour as of refined Honeysuckle. Mr. Kingsmill says:—

The sage-green *Aquilegia* that you noticed lately is seeding fairly well, and I shall be happy to send any of your friends a few seeds if they care to try it. My plant is five years old, so it has not the one failing of the lovely *cerulea*. It comes quite true from seed.

He also sends me the handsome Bird's-foot *Viola* (*V. pedata*), the bicolor variety of it, which he says does well with him. But the form sent is not what I know as the true two-coloured form of this *Viola*; in it the lower part is white, and there is a much more striking contrast. This last form seems lost; the white and other forms are now obtainable.

Again the welcome *Camassia*, with its purple stars and green and blue buds, most valuable among hardy bulbs grown for cutting flowers. It seems to thrive anywhere, though not, perhaps, so well as in those free and deep beds at Osborn's, carefully prepared by several generations of good gardeners. We have known the plant for a good many years, but never enjoyed it so much as this. With its purple stars always opening fresh, it interests one more than any cut flower of the season.

It is surprising the length of time Wallace's and other Saxifrages continue when cut to open their flowers. They look so fragile in the ground that one would hardly expect this, but one has been flowering profusely for the past week, cut at the same time as other and stouter flowers long ago withered away. Those desiring to get out of the usual displays of cut flowers might try some of these.

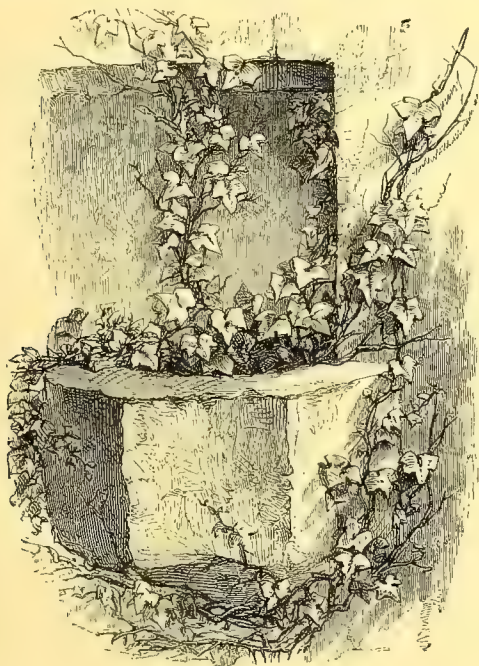
Few seem to have tried the flowers of the various Saxifrages in a cut state, but some sent from long distances seem to bloom freshly indoors, and to show their white and variously dotted little cups to greater advantage than on the plants. Out-of-doors their mossy or evergreen tufts and swarms of blooms in early summer are reasons enough for growing them, but suitably arranged indoors they are very pretty, the green centres of many kinds being very pure and delicate in tone.

Gas Lime for Gardens.—I think I have already advised every one about to use it not to do so. It is dangerous, and would be utterly useless for the purpose for which Mr. Tison wishes to employ it, that is, for the destruction of the seeds of weeds in garden rubbish. Gas lime enough to kill such seeds would render the rubbish fatal to any garden crop to which it was applied. A far better way is to get a load of bush faggots and char the rubbish. First light a good fire with the faggots, then place some of the rougher portion of the rubbish on the fire, and continue to apply more rubbish as the fire reaches the surface, so as to keep up a suppressed fire, or smother till the whole is charred, and all the seeds as well as roots of weeds destroyed. The refuse is thus cleansed and converted into one of the most useful dressings to soils of all descriptions. Another mode of at once destroying most of the seeds of weeds and enriching such refuse consists in mixing it with a sufficient quantity of rank stable or farmyard manure, to cause the entire mass to heat violently. This treatment will kill most of the weeds, and convert the garden refuse into a most valuable fertiliser. —D. T. FISH.

THE GARDEN IN THE HOUSE.

IVY INDOORS.

THE uses of the common Ivy are without end in garden decoration. The fact that it does so well with us appears to free us from the desire to make such exquisite wall-veiling and ground-surfacing of it as one sometimes sees abroad. It takes care of itself here. Apart, however, from its many and varied uses in the open air, some of which we never carry out at all, the Ivy is of singular value indoors, that is to say, it has the power of growing in rooms such as few plants have. Not only in rooms, but even in half-lighted passages one may see it growing. Sometimes, too, as everybody knows, it peeps through the plaster of summer-houses, and grows there uninvited. The grace of its young shoots and the fine form of its leaves, where they can be induced to play round a window or make a wreath up a column, have a value in various kinds of house decoration with plants which few other things possess. Planted in a wooden tub, one may often see it creeping freshly round the interior of a small shop abroad; and those who have to deal with the embellishment of the larger and better lighted



Ivy in a church (South Wales).

apartments, passages, and windows, might make a no less graceful use of it. We are not now speaking of little screens or other objects prepared out-of-doors and brought into the house at pleasure, but of regular established plants of it growing indoors, and not necessarily always in a good light.

Tabernæmontana Camassa.—Those who require flowers for bouquets should grow this plant, the blooms of which may be picked as they open and be wired. In this state they are very light, and associate remarkably well with those of other plants. Gardenias are always highly prized for bouquets, but, compared with *Tabernæmontana Camassa*, the blooms are lumpy, and will not bear the least rub without becoming discoloured; besides which, the *Tabernæmontana* is so floriferous that it yields blooms nearly the whole year round. These come in large trusses, and may be detached separately, with just enough stalk for mounting, and the thinning out does good by relieving the plants and giving the other buds more room to open. In general appearance this plant is much like the *Gardenia*, and requires similar treatment. It should be potted in peat, with a sprinkling of sand to keep it open. In propagating, take cuttings of the half-ripe shoots, and insert them around the edge of a well-drained pot in sharp sandy soil, when, if covered with a bell-glass and placed in a brisk heat, they soon root and become ready for potting off, after which they require a close, moist

atmosphere again for a time, to give them a start and fit them to bear the air of a stove.—S. D.

Plants for Halls and Corridors.—For the decoration of halls, passages, &c., the following plants will be found suitable to take the place sometimes of more valuable subjects, which, in consequence of the general insufficiency of light, invariably suffer more or less. *Pittosporums* have leaves more or less glossy and small, whitish sweet-scented flowers. They are easily propagated from seeds sown in the autumn, and wintered in a cool pit free from mice. Cuttings, too, strike from the ripe wood in August and September under cool treatment, or in the spring taken from forced plants, observing when taking off the cutting that a slight heel or shield of the older growth is attached to the cutting. The young plants may be grown successfully, planted out in prepared soil under a frame for two or three years. The progress is more rapid in this way than in pots. Slightly cutting back the young growths in autumn, so as to form the basis for a handsome bush, is all the manipulation needed. After once being placed in moderately drained pots, they should not want any repotting for a season or two. With all such subjects, the objects in view should be to keep them healthy and growing in as small a pot, comparatively speaking, as is possible. A moderately open loamy soil, with a little peat and charcoal, will suit them. The *Laurustinus* is another useful plant, preserving its freshness of foliage under very adverse conditions of life. Because it is commonly found out-of-doors with us, is no reason why it should not be used for the purposes indicated. Its flowers are fresh-looking and pleasing, and produced by pot-bound plants in abundance. It is easily increased by layers, cuttings, or seed, and may be grown for two or three seasons in the open ground before being placed in pots. Thrips are particularly partial to it when grown under cover. *Viburnum macrocephalum*, a deciduous, handsome *Snowball*, is also desirable; but, its habit being straggly, it is best grown as a standard, worked on *V. Opulus* or *V. macrophyllum*. The numerous sub-varieties of *Euonymus japonicus* are likewise useful for indoors, being easily propagated and grown, and, when once established and of the desired size, they require potting only at intervals of two or three years. *Astelia Banksi*, an Australian Grass, partaking of the habit of a Pampas Grass, but having longer and more gracefully-hanging foliage, makes a good hall plant. It is almost as effective as *Dracena indivisa*, and stands hard treatment far better than any variety of the latter. It is propagated by seeds or by division. *Eugenia australis* is a handsome, slender-growing evergreen, with panicles of Myrtle-like blooms, which are succeeded by purplish berries. This variety has the appearance of the common Myrtle, but it is of much more rapid growth, and the colour of the foliage more pleasing.—SYLVESTRIS.

NOTES AND READINGS.

I have no doubt Mr. Henslow is right in all he has said concerning the flowers of the Rosaceæ, but his suggestions with regard to the protection of fruit trees from frost by means of pails of water set under the trees are of a thoroughly non-practical character. We should want at least 400 tubs in our own case—a rather large investment, as they would cost about £1 apiece, not to speak of the filling and emptying of them. “The presence of a surface of water near fruit trees has been suggested as a preventive of frost,” Mr. Henslow says. By whom was the suggestion made? we would ask. There is hardly any authority on such subjects who has not cautioned cultivators to keep their gardens away from the neighbourhood of surfaces of water, and Mr. Henslow is the first who has suggested the contrary. Experience has long ago proved to demonstration that a worse situation could not be found for a fruit garden than near a lake or river, and one is surprised to find a lecturer on gardening subjects propounding such ideas from a purely hypothetical standpoint, and in the face of facts patent to everybody. Mr. Henslow deals with the subject of cold in valleys; but in attributing the greater injury to vegetation by frost in such situations to an ill-matured condition of the growth compared with that on the hilltop, he quite overlooks the common-sense explanation furnished by everyday experience—that it is the greater degree of frost itself which does the injury. The reason why Potato tops are bitten by frost in spring in the valley while they escape on the hillside is that the thermometer has dropped below the freezing point in the former case and not in the latter. The same degree of frost kills on the higher ground that kills in the valley, other things being equal. “In valleys,” says Mr. Henslow, “vegetation is earlier, more stimulated, and later in drawing its period of activity to a close; hence there would be a less capability of ripening wood and hardening the

constitution in autumn," and consequently the injury done by frost. Such a theory as this could never be propounded by any observant practical man, because he would know that vegetation is both earlier and better matured in the valley, and better able to resist frost. If Mr. Henslow be right, then Peach trees outdoors in this country will ripen their wood better than under glass, and endure more frost, but quite the contrary is the case.

I am not surprised to learn that there are still people found to advocate sunken houses. One remarkable advantage they possess, according to a contemporary, is that "the temperature can be kept up with less heat." I always was under the impression that the same amount of heat was required to sustain a certain temperature in any kind of structure. If sunken houses are best, why is it that gardeners and builders are replacing them universally by above-ground structures? Have pages not been written by gardeners of all shades of opinion to prove that one of the first essentials in a plant house is a buoyant atmosphere? and where is the buoyancy in a house sunk to the eaves in the earth? Such houses are as stagnant as dungeons in winter, and for many kinds of plants they are most unsuitable.

It is not cheaper to build under the surface of the ground than above it. You must have strong walls, and you must also excavate much to begin with. Brick walls above ground, says one, are not an ornament. They are not, nor is a glass roof clapped on the soil attractive, but brick walls above ground are more useful than when they are under it, as any one may see who visits a modern nursery, or looks into a good hot-house builder's catalogue. Where the walls are above ground they are always dry, and they can be made to serve two purposes. After providing for side lights and sufficient ventilation, the 2 ft. or 3 ft. of wall serves as a back for a frame, worked either by hinged or sliding lights, and such frames, if abutting against a heated structure, will need no piping themselves in winter, and will hold thousands of plants of all kinds. One of the largest dealers in Roses, tender Azaleas, and Rhododendrons, &c., stores the greater portion of his stock in such frames; these frames, too, prevent radiation from the wall, thus effecting the same object as a sunken wall without the dampness and other disadvantages. A house 50 ft. long above ground will provide nearly the whole of the walling necessary for 100 ft. of frames, as the front wall needs only to be a ledge a brick or two in height. It is seldom plant houses are erected without auxiliary frames for propagating and storing purposes, and the gardener would be ill advised indeed who would go to the expense of making extensive excavations for his hothouses when they could be erected to better and more serviceable purposes in another and less costly way.

What a glorious plant the old Poet's Narcissus is at this season with its snowy white petals, golden eye, and delightful fragrance. It is one of the most beautiful forms of a single flower. and the plant continues to flower from the end of May till July or later with us. It comes in with Tulips, Candytufts, Azaleas, and Rhododendrons, &c., and sees them out nearly. It is most suitable for massing amongst these or on the grass, and in any soil or situation almost it will flower abundantly. It is the only one of its race that finds its way in quantity into the fruiterers' and florists' shops. For naturalisation there is no finer subject, and the clumps increase in size rapidly, so that a large stock may soon be had, but it does not flower well in very shady situations. It likes light and exposure. The double variety is rapidly becoming a general favourite for cutting. Wherever Narcissi are planted this variety and the common double yellow Daffodil should be used extensively.

Mr. William Thomson, of Tweed Vineyard, is wrong in his inferences regarding flower gardening on the grass. My meaning was that this style of gardening was far from common; in fact, neglected. Mr. Turnbull, of Bothwell, never forsook his old favourites, the hardy plants, I am aware, and personally I have had to acknowledge some good suggestions from him regarding the culture of some of his favourite subjects. I was not aware, however, that examples of gardening on the grass, such as have been suggested in THE GARDEN frequently, and alluded to by me, "abounded" in Scotland. I have known not a few important gardens there, where, a few years ago, at least, gardening on the grass was not thought of, far less attempted, although the opportunities were great. Mr. Thomson speaks of the great masses of

wild Anemones and Hyacinths which he has seen in Scotland, but surely Scotch gardeners do not claim credit for gardening on the grass because they have not extirpated these pretty natives from their own lands? Daffodils in farm orchards are far commoner than they are in many flower gardens where we wish to see them. They are pretty anywhere; but something far better is contemplated as perfectly practicable, and in course of being accomplished in many places. I am not prepared to controvert Mr. Thomson's statement that this style of gardening was common in the Hebrides fifty years ago, but if it was, it seems certain that the Hebrides in their migrations have left it there, for it has not hitherto been a prominent feature in gardens on the mainland.

For planting on the Grass and on margins, the Pæonies, Iris, Tritomas, Tulips, and others of the sturdier kinds of plants that do not require stakes deserve special notice. Pæonies take care of themselves in any thicket, and never fail to flower, and the less they are disturbed the better. They come in before the Rhododendrons are over and last a long while in flower. The Iris is a good companion to the Pæony, and neither appear to suffer from rabbits or any kind of garden enemies. The Tulip will also succeed and flower for years in the same place. The question of manure and culture has often been raised in connection with hardy plants, but we know of Pæonies that have flowered every season for twenty years or more without even receiving a top dressing of any kind, and we have just counted thirty-five fine Tulip buds from a root that has been eight years undisturbed and has never received any manure during that period. The bunch is so small, that one can gather it all up in the hand, but the flowers appear annually without any apparent deterioration.

Indeed, a garden of hardy plants of great beauty is quite conceivable in which all will be growing on the margins of shrubberies and on the Grass, and where not a bit of bare soil can be seen. I do not mean a border carpeted with hardy flowering plants, but on a carpet of Grass. A very little experience shows that by judicious selection of the right subjects, and by a little care on the part of the cultivator, who knows where his plants are, a very large number of species might be used to decorate the pleasure garden in what might almost be called a new as well as a most attractive way. It is not proposed to create quite a wild garden in this way, and let things take their chance, but simply to cultivate certain free-growing and pretty subjects in the natural Grass in places near trees, shrubs, or borders, where a margin of that kind is left. For example, not long ago, I saw a long walk communicating between the mansion and the hothouses, on both sides of which was a broad margin, kept by the mowing machine, and beyond the natural undulating ground and rough Grass backed by trees. In this natural Grass Primroses had established themselves here and there in patches, and many other things might have been there as well. All that is needful in the way of culture in such cases is to take care that the plants do not get choked up with vegetation.

If we understand a writer in a contemporary correctly, Mr. Hunter, of Lambton, has originated quite a new method of raising pot Vines. Mr. Hunter does not raise his Vines from eyes in the usual way, but grows the canes upon the permanent Vines, and cuts them off at pruning time in lengths 6 ft. long, strikes them in pots in spring in a cool shed, but where the roots are kept warm by means of hot manure, and repots and fruits them the same season. In other words, Mr. Hunter roots his Vines after they have grown instead of before. It is not stated what success has attended this plan, and it should be borne in mind that whatever advantages it may possess, neither time nor space is saved by it. The Vines have still to be grown the summer previous and are rooted afterwards. One can never predict what may be accomplished in the vegetable world, Nature is so accommodating; but we doubt if 6-ft. Vine canes can be rooted sufficiently in spring to produce a good crop the same year. The writer only states that Vines treated in this manner "will" bear six or seven bunches, each averaging one pound a piece. It would have been more interesting to know that they had borne that weight of crop.

A great desideratum in conservatory decoration is a good climber for the roof, and one would naturally think the Fuchsia would be much esteemed for that purpose, but it is only now and

then we see a good plant of it trained in this way. Yet there is hardly any position in which this fine tree can be grown or seen to better advantage. Planted out with its roots in an outside border, the Fuchsia makes enormous annual growth, and never fails to flower in profusion. We have occasionally seen old plants from which literally armfuls of long pendulous shoots 3 ft. to 4 ft. long, and laden with flowers, could have been cut without making much of a gap. Indeed, the Fuchsia is probably the easiest grown and most splendid conservatory climber we possess. The most pendulous growing varieties are best suited for training up girders and rafters, and if planted in good loam and permitted to grow they will run up 20 ft. or 30 ft. in a short time, and produce an amazing lateral growth and quantity of flowers from May till near Christmas.

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I presume a "School of Gardening and Practical Floriculture" means a school of horticulture and nothing more. Only rustic compilers of cottage flower show schedules fall into the error of distinguishing between gardening and practical floriculture. What the Crystal Palace Company's School of Art, &c., proposes to teach is, we apprehend, practical gardening in all its branches and landscape gardening, two distinct branches not necessarily connected with each other. Horticulturists will, we feel sure, welcome an attempt of this sort, and I may be permitted to ask what the facilities of the Crystal are for imparting instruction in landscape and practical gardening. There are now more than one school of landscape gardening; to what school does the Crystal Palace belong? Does it belong to one school? or does it propose to compound the different styles and fit up its pupils to order? This question is only a fitting one, because in a prospectus before me the shades of the landscape gardeners from Le Notre to Shenstone are invoked, and between these two—between Versailles and the Leasowes at Hales-Owen—there is a wide difference, and neither are now regarded as exponents of the art; but if anything Shenstone has the best of it, because his "winding walks," "fair prospects," and "sylvan retreats," upon which he spent his modest income of £300 a year and his time in forming around his home in Shropshire, commend themselves more to modern taste than the depressing formality of Versailles.

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Probably the landscape gardening part of the business may be more easily overcome at the Palace than the practical gardening part. Depend upon it people who want to make gardeners or nurserymen of their sons will want to know, before paying the premium, where the vegetable, fruit, and flower culture is to come from. I do not wish to criticise as yet the company's scheme, but "practical gardening and floriculture" cannot be learned without the practice, and hitherto the Crystal Palace has not been supposed to possess facilities in that way, and it is not stated that they possess them now or that they expect to do so.

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One of the most remunerative crops a gardener for market can grow at the present time is said to be the Tomato. This vegetable is imported in considerable quantities from abroad during the summer and autumn, but English-grown fruit is preferred and fetches the best prices, being fresher and better ripened. The supply of Tomatoes is at present not equal to the demand, which is increasing every year in every town, every respectable hotel and restaurant entering them in their bill of fare. Wholesale prices run from 1s. to 6d. per pound in the summer, and of course a much higher figure is offered in winter, but the most remunerative season is from April to December. The retail price varies considerably, but as often as otherwise fruits are sold at so much a piece, hence dealers prefer medium even-sized fruits. Where the climate of this country is favourable one would think it might be worth while cultivating Tomatoes on an extensive scale. The plant is easy enough raised from seed, and when put out in May in a warm exposure bears a heavy crop. French Tomatoes which are cut before they are ripe are sent to this country as carefully packed as Peaches, and pay, we believe, better than the latter.

PEREGRINE.

Garden Appointments.—At page 509 my name was mentioned as follows: Clarendon Park.—Mr. Hill, late of Tring Park. This must relate to the appointment of my late foreman, Mr. Warden, to Clarendon Park as gardener, a change which took place some five weeks ago.—E. HILL, *Tring Park*.

THE INDOOR GARDEN.

SPIRÆA JAPONICA IN AND OUT-OF-DOORS.

OF this we grow enough under glass to give us a constant supply of flowers from the beginning of January until the end of May, when it comes into bloom in the open air, and continues to supply us with flowers for another six weeks or two months. We have, therefore, *Spiræa* flowers for more than half the year, but we find them none too many, their usefulness and beauty being highly valued. When in flower in pots they are most ornamental, and the blooms when cut are excellent for vase embellishment. Here we use them for everything, including church, conservatory, drawing-room, and dinner-table decoration, and in all these cases we can hardly use them too liberally or too long. The needs of this plant are few and simple. It may be readily propagated by division. A fair sized plant will divide into a great many if one is content with small pieces. The best time to do this is in spring, just after the blooming period is over. When forced early the plants are generally placed in a good deal of heat, and when done with they should not be placed suddenly out in the cold, but placed in a frame and protected with glass. Here early forced plants may remain until April or May, and then they should be divided if increased stock is desired. The plants should be taken out of the pots, the roots cut through with some sharp instrument, and then potted singly. Large specimens may be required for some purposes, but, as a rule, plants in 6-in. pots will be found more useful, and the divided roots may be potted into this size at once. Loam, sand, and cow manure form the best mixture in which to grow them, and perfect drainage is necessary. In potting the soil can hardly be rammed too firmly, and the best place in which to start them into growth after potting is a close, unheated frame. If placed here, and watered, young leaves will soon appear, and by this time air must be more freely admitted until they are hardy enough to remain wholly exposed.

To this treatment they may be subjected during the whole of the summer, autumn, and up to the time when they are placed in heat for flowering. When growing freely in summer they need not be kept in the frame; on the contrary, they will do equally well out of doors or in the open air altogether. A sunny position is best for them, and abundance of water is all they require throughout the growing season.

Some plant their *Spiræas* out in summer and lift and pot them in the autumn, but this plan I do not like, as I have always found those plants retained in pots to force better than those lifted and potted. If the pot ones cannot have enough of attention in the way of watering during hot weather, they may be plunged in ashes, earth, or sawdust, which will lessen the necessity for watering. Well developed and thoroughly matured crowns are the ones which force most freely early in the season or at midwinter, and care should be taken that those intended for this purpose have such attention as will insure these conditions. When large specimen plants are wanted small plants may be transferred to larger pots annually without disturbing or breaking up the roots. When any plants have become large enough they need not be re-potted every year, but should remain in the same pots for a long time. During the growing season these plants should be liberally supplied with liquid manure. In forcing from Christmas to Easter they want a temperature of about 70° to bring them out freely and plenty of light, but after that time they will come readily into flower in any glass structure, heated or otherwise. Our last pot plants have just come into flower in a cold frame, and these will form the last next year, as the earliest flowered ones have long since made much new growth, which will mature early and force readily in the shortest days. Out of doors we have some plants growing on a south border and others behind a north wall, and these flower over two distinct periods.

As a herbaceous border plant this *Spiræa* is most charming, and it should be grown in large numbers. Small beds of dwarf bright blooming *Rhododendrons* edged with this *Meadow Sweet* have a striking effect, and as a wild garden subject or a plant to be used by the sides of drives it will always give satisfaction. CAMBRIAN.

Tuberose.—How should these be treated?—A. J. B. [Pot them singly in February in 5-in. pots firmly in good rich soil consisting of two parts turfy loam, one leaf-soil, and one part spent Mushroom-bed manure, road grit or coarse sand, incorporating the whole well together; they are then plunged in a pit in which there is a gentle bottom-heat from leaves; they are not watered until they make a start and then very sparingly. When they show their flower-spikes, water of the same temperature as that of the pit or 10° higher is administered more freely. The temperature of the pit should not exceed 55°, as during their early stages of growth they

dislike excitement, and would probably make foliage at the expense of flowers. When the spikes are from 1 ft. to 18 in. long, the plants are removed to a Vinery or Peach-house, and when in flower to the greenhouse. Later batches are simply plunged in leaves without peat. Under the foregoing treatment, they may be had in flower from June to December. We use them very largely for button-hole bouquets, a purpose for which they are very suitable.—J. C. MUNDELL, *Moor Park*.]

EARLY-FLOWERING PELARGONIUMS.

I OFTEN see it stated that amateur growers have fewer flowering plants during this month and next than in the early spring months. If they were to cultivate a few of the so-called decorative or market Pelargoniums, they would have their greenhouses a blaze of lovely flowers from April to the end of July, and that with the same set of plants. I am an amateur and never employ a gardener, and perhaps a few hints on their culture by one who is very successful with them may be of interest. Procure strong, young-rooted plants as early as possible and pot them in 2½-in. pots; pinch out the points of the shoots when established, and have them in their blooming pots, 5-in. ones, by the end of August. For compost use good loam, rotten manure, and sand; pot moderately firm and be sure the drainage is good. Stop them once more only, and then allow them to grow as fast as they like. During winter they must be kept clean by means of the syringe and tepid water; place them well apart upon inverted pots close up to the glass. I keep a temperature of from 50° to 55° in winter during very severe weather. I give plenty of air and utilise sunny mornings to wash them thoroughly out-of-doors. In February I use soot water, increasing the strength; this is most beneficial both to flowers and foliage, and I never give anything else. They will take abundance of water with the rapidly increasing sun heat, and be sure that plenty of room is left for watering at the August potting, for if allowed to get dry the lower leaves turn yellow, fall off, and green fly gets the upper hand; this pest hates moisture and soot water. I had a few in flower on March 14, but from the middle of April to the end of July there should be no lack of exquisite flowers. The full value of them will not be known till the second year, when, of course, with larger plants comes a perfect mass of flowers.

The secret of early blooming the second year is to cut them hard back early, the first, say, in the first week in August; to accomplish this when they begin to look shabby, turn them out in the full sunshine to ripen their wood, which will take about a fortnight, then, as I said before, cut them in and do not be afraid of the knife; give no water till they break, then do it thoroughly, and when the new growth is 1 in. long shake away all the old soil and repot in the same size, or 6-in. if you like, and treat them as before, only no stopping is required. The sorts I grow are Duchess of Bedford, Triomphe de St. Mande, Kingston Beauty, Perle Blanche, Grandiflorum, Bridal Bouquet, Improvement, Hercules, Glitter, La Patrie, Dr. André, Prince of Pelargoniums, Regalia, and Mad. C. König, the only spotless white, a perfect flower; Queen Victoria and Dr. Masters, two good "regals," but later than the above. I cannot conclude without expressing my thanks to Mr. Bailey, the writer of the article on these plants in THE GARDEN of January, 1880, to the careful reading of which my success and pleasure is mainly due. S. L. BOURCHIER.

Great Crosby, Liverpool.

HEDYCHIUMS.

(GARLAND FLOWERS.)

THE three Orders Cannaceæ, Zingiberaceæ, and Musaceæ are rich in plants, which either for beauty and singularity of flower and foliage, elegant and noble habit, or great economic value, are deservedly ranked with the most ornamental and useful plants of the tropical flora. To mention the Musas, Strelitzias, Alpinias, Curcumas, Kempferias, Cannas, Calatheas (Marantas), and the Hedychiums, is to enumerate only a few of the most ornamental of the genera, while Zingibers (Ginger), Elelettarias (Cardamoms), Amomum (Grains of Paradise), Maranta (Arrowroot), and Musas (Banana) may be mentioned as some of the most valuable amongst those possessing medicinal and other economic properties.

The ease with which the whole of the above plants may be cultivated, and the rapidity with which most of them attain full size, have won for many of them favour with most cultivators. Amongst such

may be mentioned Musas, Cannas, Calatheas, Curcumas, &c. Hedychiums, however, with, perhaps, the exception of the species here figured, are not so popular as the beauty and fragrance of their flowers and freedom of growth render them worthy of being; and, therefore, I would here call attention to some of the most beautiful of the species now in cultivation. The value of these, along with many others of the genera above mentioned, for tropical, temperate, and even out-of-door aquaria and other moist situations, is well illustrated by the magnificence that some of them attain when grown in such places, Mr. Green's Canna Ehemanni, Hedychiums, &c., various plants at Kew and other botanic gardens, being some of the most noteworthy. Planted in pots half submerged in, or in mounds raised above the surface of the water, the vigorous growth such plants make is astonishing, and, therefore, this mode of culture cannot be too strongly recommended for many of the plants above-named. Hedychiums may be grown well if planted in a bed in a cool conservatory, and in summer some of them may be planted in pots or pans and stood in tanks or other moist places out-of-doors. They may also be grown under the treatment given to the Indian Shot (Canna), though, like these plants, they are capable of standing the winter out-of-doors.

H. Gardnerianum is a native of the temperate regions of the Himalayan Mountains, especially about Nepal. It was grown in this country as early as the year 1820. It produces a thick sturdy



Hedychium Gardnerianum.

rhizome, from which annually spring the thick, herbaceous, leafy stems which grow to a height of 4 ft., and bear spikes of bright yellow flowers. The structure of these flowers is singular, and bears some resemblance to that of Orchids. The corolla is divided into six segments, three of which are narrow and pendent and of a deep green colour, while the other three are broad, the lower one being much the broadest, and standing out like the lip of an Orchid. Some years ago a plant of this species seeded in England, and the brilliant colours of the fruits were as beautiful as those of the flowers.

H. coronarium is similar in habit to the above, but has snow-white, sweet-scented flowers. These flowers are in arrangement similar to those of the above, but the three larger segments are broader, the lip being almost 2 in. in width. This species is mentioned in Aiton's "Hortus Kewensis," and was cultivated in this country before 1791. A native of China, &c. The flowers of this species are said to be frequently worn in the hair by the Indian ladies, and when sent as a present to a young man, are meant to reproach him with inconstancy.

H. chrysroleucum grows to a height of 5 ft. Its freely produced flowers are of the purest white with a bright orange coloured blotch on the lip, and are deliciously fragrant. The long filament which encloses the style is of the deepest orange colour. A native of the East Indies.

H. flavum is a very strong growing species with leaves from 12 in to 14 in. long. The flowers are large, fragrant, and in colour the brightest of orange. A native of the Himalayas about Sylhet.

Other species quite as beautiful as the above might be mentioned, but as they are not known to be in cultivation they may be omitted here.

Z. B.

Spiraea palmata.—In answer to "Amateur" (p. 524) allow me to say that Messrs. Paul & Son, of Cheshunt, offered some beautiful plants at their Bishopsgate Station Stand of this *Spiraea* in large pots about a fortnight ago, a fact which shows that it forces well.—J. R. DRORR, *Stanford Hill*.

SUMMER TREATMENT OF CINERARIAS.

THOSE who have either a warm conservatory or greenhouse, and likewise cool pits in which to give the plants the requisite summer treatment, possess ample accommodation for bringing Cinerarias to the highest state of perfection. Plants from the first sowing should now be ready for pricking off, and a second sowing may be made at once if not already done. Prepare some well-drained pans filled with leaf-mould and sand, in which to sow, cover the seeds lightly with a fine preparation of the above, and keep them just moist and shaded until they germinate; then the pans must be placed near the glass, on a shelf or in some light position, and shading discontinued. Immediately the young plants are large enough to handle, prick them off into other pans prepared as just recommended, adding this time a little loam; when pricking off, allow sufficient space between the plants for the development of foliage, the size of Black Currant leaves. When the plants attain this stage, they may be potted into their flowering pots (6-in. ones), being careful to lift them with a good ball of soil; use good loam and leaf-mould in equal proportions, and to these add a little silver sand. By this method the intermediate potting usually practised is dispensed with, and I have always found the results equally satisfactory. Potting being completed, the plants may be transferred to their summer quarters in the cool pits, where they should be plunged in a bed of ashes or Cocoa-nut fibre refuse, allowing the necessary distance from the glass for full development; shade lightly until the plants recover the shift, which will be in a few days. The lights should now be drawn entirely off the pits during the day-time and the plants fully exposed to sun and air, except in wet weather or during cold rough winds, which would be liable to break the foliage. To guard against this do not omit to replace the lights every evening, and in mild favourable weather leave air on at night. It will be found that Cinerarias grown fully exposed to the sun and air, and plunged in a bed which will tend to keep the roots cool and moist, will form dwarf robust plants with handsomer and smaller foliage, less liable to the attacks of aphid or mildew, than plants grown under shade and in a close atmosphere.

In hot dry weather damp the plunging material occasionally, and the syringe may be drawn lightly over the plants themselves in bright sunny weather. This should be done early in the afternoon, so that the leaves may get dry before nightfall. Continue this treatment throughout the summer; by the end of September the nights begin to get cooler, and the plants may be removed to the greenhouse or conservatory, where they will be benefited by a drier atmosphere and the assistance of a little fire-heat when necessary. When they commence to push up their flower-spikes, watering with some weak stimulant will encourage the development of fine blooms, but guard against the application of anything too strong; weak liquid manure-water is the most suitable, but the smell of this being offensive, Standen's manure may be used instead with good effects.

Cinerarias being subject to green fly, attention must be paid to see that they do not suffer in this respect; it is advisable to fumigate with Tobacco-paper occasionally, whether fly is perceivable or not. If the plants should be attacked, fumigate lightly twice in succession or even three times in preference to applying the remedy too strong. The foliage of the Cineraria being very tender, great care must be exercised with regard to carrying out this operation.

R. G.

TROPEOLUM TRICOLORUM AND AZUREUM.

THERE is no more graceful greenhouse climber than the three-coloured Tropæolum, and a well grown specimen is when loaded with its bright flowers extremely effective. I do not think that the culture of this plant is so well understood as it should be; at any rate, one seldom sees it now-a-days in the state of luxuriant development necessary to afford one a true idea of its worth. Formerly, this plant was more extensively and better grown than at the present time, and before so many free-growing, showy, flowering subjects found their way into our garden, much skill and care were bestowed on this elegant climber. Whether trained to the roof of a glass structure, made to clothe a trellis or drape a wall, Tropæolum tricolorum forms, when growing freely, one of the freshest and most enjoyable of floral pictures. The foliage is of a pleasant and refreshing shade of green, contrasting charmingly with the innumerable bright hued flowers, and when trained to the rafters, and some freedom of development allowed, the individual shoots drooping down informally here and there, this pretty climber forms a fine ornament to any glass structure.

T. azureum is, as its name implies, very distinct from the foregoing. The flowers are of a beautiful blue with a white centre; the spur, being extremely short, is almost hidden by the corolla, which expands widely, showing the white portion of it very distinctly, so that the whole appearance of the flowers would scarcely lead one

to imagine that the plant bearing them belonged to the genus Tropæolum. This plant is but rarely seen in English gardens, and scarcely ever in good condition, a fact much to be regretted, for it is certainly one of the most lovely greenhouse plants ever introduced into this country. I can scarcely describe how beautiful it is when well grown, and if any plant ever repaid painstaking care this one does. It is not of such free growth as its congeners, but I have grown specimens of it in 8-in. pots trained to a trellis some 2 ft. high, clothed with healthy foliage to the base, and studded with hundreds of its charming blooms. I have also grown it trained up the rafters of a cool structure in company with tricolorum; the contrast between the two specimens is most striking. Any of your readers who may like to try their hands upon these tuberous Tropæolums will, I am sure, succeed if they will follow the instructions here given.

Potting the Bulbs.—Many who grow or attempt to grow these Tropæolums commit the error of deferring the potting up of the tubers until too late a period. If a tuber is in congenial circumstances it will of its own free will push into growth by the beginning of September. It will, therefore, be seen that potting should be done by the middle of August at the latest, and that the advice so often given to pot in October and November is quite wrong. As a fact, the plants should have made good growth by that time and be engaging the attention of the grower in the way of training. In order to form good specimens sound two-year-old tubers should be procured, and when these are to be purchased take care to get them about July, as then they are quite at rest and will travel well. The compost for them must be extremely free, for these little climbers are by no means coarse rooted, and cannot make good progress when the delicate fibres are enveloped in a hard or sour mass of soil. The mixture that I recommend is for tricolorum leaf-mould, peat, and loam in equal parts, adding quite one-sixth of the whole of silver sand, together with a few nobs of charcoal. The size of the pot will be in accordance with the requirements of the grower, as if large specimens are desired for conservatory decoration, two or more tubers may be placed in an 8-in. pot, but really good effective specimens may be grown in 6-in. pots, and for window decoration and many purposes 4½-in. pots will be large enough. No matter what the dimensions of the receptacle may be, the drainage must be ample, and so disposed as to obviate all danger of stagnation. For the large size 2 in. of crocks will be none too much, and on these should be laid some fibrous peat, which will guard against all danger of choking, and the drainage will remain free and open in good working order until growth is completed; use the compost in a state between dry and wet, make it firm but not hard, bury the tubers some ½ in. under the soil, and water gently to moisten it through. This done, plunge the pots quite to their rims in a cold frame, water again gently, and cover the surface soil, pots, and all thickly with moss or old pieces of mat. Upon this part of the work being well carried out depends the future progress of the plants; this plunging of the pots forms indeed the keystone of success to the culture of these Tropæolums, for the soil being thereby preserved in an unvarying state of moisture, a slight sprinkle now and then in hot weather being enough to keep it from drying out, a large amount of root is made, with the consequent effect that the young growths push forth with great vigour, making as much progress in one week as they would otherwise do in a month.

Training.—As it is not advisable to take the plants out of the frames until they are to be placed in their winter quarters, leaving the pots plunged all this time, the best way is to merely insert several small sticks round the edge of the pot, tying the shoots to them as they advance in growth, keeping the shoots well down to the base, so that the lower part of the specimen becomes well clothed. By no means top the shoots; allow them to travel onwards; they will as they go on throw out laterals, and so clothe the whole of the trellis, when at a later period this same is fixed. Give plenty of air by tilting up the light night and day, exposing to the night air when the weather is warm and calm. By the end of October some considerable amount of growth will be made, and the plants may then be removed to a light greenhouse. A balloon-shaped or flat trellis may then be placed to each specimen, and the shoots trained thereto as they advance in growth.

Planting Out.—The growth that these tuberous Tropæolums make when the roots can ramble freely in a tolerably large body of soil would surprise those who have never seen them thus treated. Where space can be found in a light, cool, well-ventilated structure a border should be made for them. All that one has to do is to afford them some 12 in. to 18 in. of good compost, ensuring perfect drainage by placing some 4 in. of brick rubble at the bottom, covering the same with fibrous material to prevent the finer particles of soil from mingling with it. In small greenhouses the shoots may be trained to the rafters, and when in full bloom will adorn the structure most effectively. In large conservatories they may be trained

to the supporting columns, which they will clothe with their fresh green foliage. The lovely azureum grows much more satisfactorily planted out than when subjected to pot culture. I should, however, mention that this species should be planted or potted in a compost consisting mainly of peat. A little leaf-mould may be added, but no loam, for the roots of this blue-flowered *Tropæolum* are extremely susceptible to an excess of moisture, and when they become in the least torpid the leading growths go, as it were, blind, and when this takes place good-bye to anything like luxuriance of growth and profusion of bloom. Let the peat be good, and shift out all the dust from it, adding to it plenty of coarse silver sand.

General Treatment.—*Tropæolum tricolorum* and its allies very much dislike anything like a hurrying temperature. The very fact of their commencing to grow towards the close of the summer and finishing their growth by the time that the heat of summer arrives, is enough to indicate the proper treatment to the intelligent cultivator. A cool structure from whence frost is excluded suits them well as regards temperature; indeed, they associate well with such subjects as the Chinese Primula, the Cyclamen, the Cineraria, &c., a little fire in very damp weather being all that is needed for them. Watering must be carefully conducted during the winter months, the great point to be observed being to maintain the soil in an equally moist condition without administering heavy doses of water. If the plants are on trellises, get them well up to the light and where they can on all favourable opportunities enjoy the free admission of air, which is of the utmost importance, as these little climbers cannot endure a confined warm atmosphere. They are indeed children of a temperate climate; they love to feel the play of fresh pure air around them, and do not like to be exposed to the direct influence of a hot spring sun. Therefore, when arrived at the month of April, shade for a few hours and sprinkle the path and stages of the house, which will help to prolong the flowering season and will preserve the foliage fresh and green. As the flowers fade and the plants show signs of going to rest, gradually diminish the supplies of water. Should green fly appear, dust at once with Pooley's Tobacco Powder.

Byfleet.

J. CORNHILL.

EFFECTS OF THE WINTER.

It may interest some of your readers, whose complaints of the destructiveness of last winter's cold among plants and shrubs are so numerous, to hear how it has fared with us situated on the moors at an elevation between 900 ft. and 1000 ft. above sea level. Laurels have been slightly scorched, as their leaves testify, but not one killed. A Deodar on the lawn looks as well as ever. Hollies are uninjured, and, in fact, I may say that we have lost no shrubs, not even Rhododendrons. I was anxious about a certain border, which is filled with all kinds of perennial flowers, and this month I have been looking carefully to see what damage had been done. Beyond a loss in Carnations and Picotees, I can find no casualties. I think *Adonis vernalis* did not flower quite so well as usual, but the earlier Narcissi, such as Empress, bicolor, Horsfieldi, and all the incomparabilis section have done better than ever. It has been the same with Polyanthus, alpine Auriculas, Gentians, and other early flowers, and no spring of late years, owing to its sunshine and dryness, has been so favourable to my spring border.

A remarkable trait of this soil is its suitability to the common *Narcissus poeticus*, which absolutely runs wild in it. In about 80 yards of border I have thousands of blooms of this lovely flower, and so fast does it multiply that there is considerable work in digging up the bulbs for re-division from time to time, owing to the masses they form at their roots. Perhaps this sandy, peaty soil and the dry, though cold, atmosphere must account for the little damage that I find done to my plants and shrubs. Seedling Pyrethrums planted last autumn have survived the winter with many kinds of the best Potentillas, and small plants of the common red Mezerion have flowered gaily in exposed places.

It remains to be seen if less hardy plants will flower equally well this summer, but the general appearance of the strong leaves pushing up makes me believe that the winter's cold has left no perceptible mark behind it. I should like to mention further that *Calla æthiopica* has flowered for the third year double-spaced in the greenhouse. I have seen in THE GARDEN that some of your correspondents have remarked this sport in their Callas. Also, I may add that I have found growing wild on the moors a rare Fern (*Asplenium lanceolatum*) in luxuriant profusion. This Fern, I fancy, is usually met with near the west coast and in warmer situations. Its growth here goes to prove that high situations are

after all not so injurious to plant life as lower localities, and that a dry cold, both for vegetable and human life, is healthier than damp and fog.

R. A. GATTY.

Bradfield Rectory, Sheffield.

GARDEN DESIGN.

MR. MILNER ON LANDSCAPE GARDENING.

Mr. G. E. MILNER, who is responsible for the organisation of the Crystal Palace plan for a school of landscape gardening, has been writing in a contemporary on the education of the landscape gardener, and what he says is sensible enough, but most interesting to us from omitting allusion to the most essential thing of all for the landscape gardener to know—the materials with which the earth is adorned, and which it must ever be the highest duty and the keenest pleasure to represent worthily for us in our gardens, parks, or woods. He speaks of

The curious popular fallacy which so often confuses the profession of landscape gardening with the work of the practical gardener—a distinction analogous in some degree to that of the architect and the builder. One division of the school is intended to provide a training for gentlemen who, having already received a liberal education, purpose making landscape gardening their profession; the other is intended for the training of young men as gardeners. "Practice" confuses the curriculum set forth for the landscape gardener's training with that set forth for the practical gardener's. His arguments would have some force if the tuition proposed for the landscape gardening division were offered to students of the practical gardening division. Much thought has been given to the curriculum set forth for the landscape gardening division, which, being theoretical as well as practical, and requiring more knowledge of the applied sciences, can be more easily defined, and we maintain that a thorough knowledge of most of the subjects, and the understanding of the principles of the others enumerated, should be possessed by the landscape gardener. There has as yet been no opportunity presented, but a great deal can be learned in a systematic two years' course. To the landscape gardener a knowledge of surveying, drawing, office work, designing and superintending earthworks and constructional works, practical work in the laying out of grounds and estates, together with the cultivation of artistic taste, is more essential than the knowledge of how best to strike a cutting, though, as will be seen by the prospectus, practical botany, and a knowledge of plants and their growth and grouping, is by no means neglected. The Crystal Palace School endeavours to provide a practical training in a systematic manner, and not in the haphazard and tedious way which has hitherto prevailed.

Not one word here, be it observed, of the very soul of the whole question—a knowledge of the larger trees and flowering trees and shrubs of the world in Nature as well as in cultivation, and also of the flora of our gardens of other kinds. A good garden is for the keeping of a number of beautiful living things, and good landscape gardeners can never be made unless they know and love that life better than, and above, any other detail of their profession. Let it be borne in mind that we have to deal with the future, that the coloured gravel, terrace wall, water-squirt pattern bed properties have nearly served their turn. Gentlemen who have received a liberal education, and purpose making landscape gardening their profession, will never be worth anything for good in gardens if that is all they know, for the simple reason that a man can take no real joy in a garden unless he knows what ought to be in it as well as the human beings he knows best and likes best. When it is considered how vast is the field to be studied, both in gardens and in Nature, before a young man can possibly possess this knowledge, and how much travel and loving observation to make before it can be attained, it will be conceded that merely going through a curriculum at the Crystal Palace or elsewhere will not make a landscape gardener. Many things could be devised better for him than an apprenticeship in what is the most dreadful of modern gardens, as regards the design of much of its surface (the desolate regions of the great fountain basins). In a word, the budding landscape gardener ought to begin by living in a variety of the larger class gardens and parks, including at least one good botanic garden, so as to get well acquainted with the materials of his art. The plants, shrubs, and trees of the world, and the innumerable aspects of vegetation which they present in parks and gardens, but more particularly in Nature, in many countries, are to him what mastery of light and shade and

drawing are to the artist before he can make pictures of any value. If taught what Mr. Milner speaks of only we shall have garden architects or engineers, no doubt, who will be laying out our gardens to illustrate their ideas of style, &c., but no true garden work. The technical parts of levelling, &c., should always have a minor place, and, well taught, are easily and quickly learnt compared to the varied and ripe knowledge of the sylvia and flora of our gardens, and our own and other northern countries, which only long years of work and earnest observation can give.

RURAL EDUCATION.

WE have been struck with some remarks by "A. P." in the *Field* on this subject which are not without a bearing on our own art, especially if the time should ever come when any education of the young gardening mind is attempted. There is no occupation upon earth which requires more and more various culture than is required to make a first-rate farm labourer. Eye, hand, and sympathies all need to be cultivated, as does some power of forecasting the future. It has been well said that a good husbandman is "highly accomplished." And this culture can only be obtained in the fields, and can only be acquired when the pupil is very young. If the school learning is to be given as it ought, how can the practical teaching of a husbandman's duties be simultaneously acquired? As it seems, the framers of the Education Acts have far too much overlooked the difference between the seasons. Our winter and summer are quite unlike, and fit for very different treatment. In winter, poor little shivering lads are best in the schoolroom; in bright spring weather, or in long summer days, those who are to grow up hardy are best educated out of it. Through the peculiarities of our seasons there is ample opportunity for male children to be encouraged to be present half the year with the workers in the field, and yet progress towards the acquisition of the three R's need not be allowed to slip back. Of lads anxious for clerks' places, railway porters, &c., there are thousands now unable to find situations, and on the verge of starvation or crime because they cannot; whilst of competent horse-boys, cattle-tenders, hedge or fruit-tree pruners, and for all the real work of the world whereon all our civilisation and town population depend for necessities, there is not one quarter of what are wanted to fill vacant posts. Let civilisation progress as it may, there never can be too many men who are familiar with Nature in her rougher moods; *i.e.*, males who can face weather, and till the earth and plough the seas, as only earth and sea can be dealt with to make them yield their stores. This writer for twenty-five years carried on, alone and unassisted, an evening school during the winter months in a country place for boys at work, and he speaks from experience. These night schools are absolute necessities for males. Yet the kind of teachers now certificated (and upon the employment of whom all Government aid depends) are frequently most unsuitable managers of such schools. Night schools can never become general and be regularly carried on until the public money is extended as freely to them as to ordinary day schools. The night schools are a part, and a most important part, of any efficient national education. There can be no really adequate system of national education which does not recognise that the fitting at least half of the boys to cope with wind, weather, and stubborn beast is all-essential, and that this faculty must be cultivated very early by persons themselves familiar with what has to be done. Handbooks to enable white-handed teachers to lecture on such matters are pretentious blunders. Neither agriculturists nor fisher-folk can ever be trained so. Nor can any one class (and certificated teachers are rapidly becoming a class) be expected to be efficient educators of candidates for very different pursuits. Each class and each generation must join in educating its own members. There should be—in the early inspection of country schools—as many marks given for attendance to the boys who can be shown to have been fully employed in the fields, who have learned to earn a few shillings a week in summer by useful labour, as there is to those who can write, cipher, and spell.

The East Wind and Journalism.—We know how trying the east wind has been of late in our gardens and orchards. It has killed a good many blossoms and crippled more. It has been a happy relief to turn from the biting storms abroad in the garden to the pleasures derivable from our horticultural literature. But latterly there have been several alarming symptoms of a sharp east wind ruffling and disturbing the staid sensible pages of our gardening papers. Through the storm several have been seen contending for priority of tying stones to the branches of trees, as if most boys had not done this or hung on to them to keep them

down or pull them up. Others claimed to be the authors of a system that allowed trees to extend themselves, as if Nature had not taught and practised that method from the time of Adam. Parallel columns are then set forth to prove plagiarisms, in which I confess my utter inability to discover the ghost of a new idea worth stating, or anything not known to all cultivators of average ability for the last half century. It is full time the east wind ceased blowing through the pages of our journals. Our press has been an honour to the profession, as learned and practical as it is cultured and refined, and I earnestly trust that it may continue as sweet, gentle, and pure as the noble art which it so beautifully illustrates and richly adorns. D. T. FISHER.

MARKET GARDEN NOTES.

MARKET PLANTS.

IN large market plant nurseries the work is one incessant round of putting in cuttings, and shifting, and growing them into plants. There is every day, or every other day, a space left empty, and as regularly that space must be filled; and filled it is, too, with a speed that may well astonish young gardeners who have only been in gardens where things are done on a slow and monotonous system. Competition, a powerful stimulant in all trades, is all-powerful in the market plant business; not only must vast numbers of plants be produced, they must be good plants. Few places, however large, grow many kinds of plants; the great feature in most is doing a few things well, and getting for these a high reputation. In some places there is, perhaps, a wider scope, because of some things that are not so much in demand few are grown, and therefore the grower who is fortunate to have things that are not so generally grown can, when the demand comes, make of these a tolerably good profit. Some are famous for Cyclamens, others for Palms, others for show Pelargoniums, others, again, for zonal Pelargoniums, others tricolor and golden Pelargoniums, others for Cinerarias, and, indeed, specialities in these things are a marked feature. Interesting, however, as are these things when seen in the market, very much more interest attaches to seeing them growing in the nurseries, for there may be seen not merely the plant in its perfection of bloom or leafage, but also in its various stages of growth.

In looking over several of these market plant establishments in this district, I have found the greatest interest attached to that of Messrs. Smith & Larke, at Ashford, chiefly because of the great variety of plants grown. Some half-dozen houses devoted to Fuchsias, the bulk of which are Mrs. Marshall, or to show Pelargoniums, all in various stages of growth, become monotonous, and therefore a place containing greater variety affords perhaps more pleasure, although it is no doubt the case that where only a few things are grown there they are best done. Still, one does not like to suppose that London people care only for Fuchsias, Pelargoniums, Cyclamens, and certain other things that have a wide reputation; and when we get to the general florist's establishment, such as that at Ashford, the really wide scope of the market demand is seen. Here the year opens with supplies of Solanums, Cyclamens, Spireas, Chinese Primroses, Cinerarias, scarlet Pelargoniums, Echeveria retusa; and then February brings added to these Callas, Genistas, and Ferns, but these latter are always in season. With March come Dracenas, pot Roses, Tulips, Hyacinths, and Narcissi; April, Azaleas, Deutzias, Mignonette, and show Pelargoniums; May brings in Fuchsias, Oak-leaf Geraniums, Heliotropes, and Lobelias, bedding plants in boxes in infinite variety, Hydrangeas, variegated and green Ivy-leaf Pelargoniums, and Tuberose; June adds Balsams, Lemon plants, Coleus, Petunias, and so the year rolls round; the work of propagation is never ending, and the same may be said of shifting and potting. The houses must always be full and doing something, and I noticed that large quantities of Cucumber plants were being got ready to plant out in any of the houses in which there are soil beds or stages. The style of planting here is, if crude and simple, certainly one that results in success. The plants turned out of pots are set on the solid soil, and around the ball is heaped fresh loam. As they make root, this is added to, until a bed of soil several inches in depth is formed all over.

Pelargoniums.—Two kinds of market plants stand out with special prominence in all market plant establishments at this time of the year. These are show Pelargoniums and Fuchsias. Of the former there is, fortunately, no lack of variety, and, although it does not pay to grow kinds other than those which are remarkable for their flower-producing properties, yet there are many and varied, and all very beautiful. The old style of leggy plant, 20 in. in height and carrying half-a-dozen trusses of flower, has had to give place to the splendid hybrids introduced by Mr. Brown, of Hendon, and other capable raisers, and now almost millions of plants are grown for

market in 4½-in. pots—to strangers literally marvels of cultivation, dense, compact, full of luxuriant leafage, and carrying, perhaps, twenty expanded trusses of bloom, and twice that number of others in embryo. One of the best of this class amongst whites is the Duchess of Bedford, the colour, but for the rosy-purple blotch, very pure, and the flower of good form. There is a splendid companion kind to this in *Memoris*, rich deep scarlet, a wondrous bloomer and remarkably showy. Also good are *Magnet*, *John Bright*, and *Triomphe de St. Mande*. How the growers get the wonderful plants they do from cuttings put in during the summer is a tale that has often been told; but, none the less, when those who have read of all this, but have not become familiar with the way and style in which plants for the London market are grown, see the plants and the simple and unpretentious kind of structures in which they are grown, they marvel with good reason. It must not be supposed that stimulus has so very much to do with this culture. Very much more lies in the soil, the which, if of sound, sweet, turfy loam, mixed with one-third of clean, well-beaten, and sifted horse manure, makes a mixture in which the show *Pelargonium* delights. Feeding may do very well when the flower-buds are seen, and then liquid manure, not too strong and given twice or thrice a week, may be used with advantage. Fowls' manure seems to make a favoured stimulant at Ashford.

Fuchsias.—Certainly the most popular *Fuchsia* ever raised, at least in a market sense, is *Mrs. Marshall*. It is the market variety, so much so, in fact, that one soon tires of the monotony of house after house of this kind alone. I saw but the other day at Hounslow a long house 200 ft. full from end to end of this variety. A look in at the door suffices. Still, the way it is produced for sale in 4½-in. pots is marvellous, tens of thousands of plants 18 in. high, having from six to a dozen stems or shoots, all tied up to an erect position, and each plant full of fine bloom. Then old *Lady Heytesbury*, having a darker corolla and more massive tube, comes in for a limited share of culture. It is of the two, perhaps, the most pleasing flower. The plant produces but two or three more massive stems, but blooms freely when well grown. One other very handsome white kind is *Mary Queen of Scots*, the corolla of which is of a rich reddish hue. I like this kind very much, perhaps all the more that one does not see too much of it. Red kinds never are in such favour as white ones, and are sold usually in the proportion of about one to three or four early, but there is a larger demand later on. That grand double *Avalanche* is a favourite; so also is *War Eagle*, and *Black Prince* is another excellent sort. I wonder much that some of Mr. Ley's new and certainly very free kinds of *Fuchsias* are not found in market-plant nurseries. Probably, they are not yet well known to the trade.

Cinerarias.—Market growers of these spring decorative plants who have a good strain seem to be somewhat in advance of the ordinary florist and seedsman in the matter of habit and quality, even though the latter, no doubt, strive to obtain good kinds. Somehow it appears to be the case that one or two men have in the market trade a good reputation for their strain of *Cinerarias* for a few years, then the mantle falls upon others; and thus, whilst a fine strain is always to be had, it is not always in the same hands. Some years ago there was no finer strain than *Weatherill's*, and old hands assert that there is none better now. If this be so, then it is evident that *Cinerarias* all round have made but little progress. Dull colours, let the flowers be ever so good, are not in favour; rich reds and crimsons with a white centre and good dark selfs also are liked, because these kinds look unusually rich and telling under artificial light. Given flowers as large and rounded as a penny piece, plants from 10 in. to 12 in. high, and heads 12 in. across, and we get the ideal of a market *Cineraria*. Raised so easily from seed, it is one of the simplest to grow in all the florist's list, and as a rule sells well and is very profitable. The great fault of the average *Cineraria* is legginess. The German strain grown so well at Chiswick was dwarf and compact enough, but the flowers of very poor quality. A good selected market strain would show something much better than those.

Miscellaneous.—One of the finest of scarlet *Pelargoniums* for market culture is *Comte de Gomer*; the flowers are of great size, substance, and rounded, of a deep, rich, crimson-scarlet. It is a long way ahead of *Vesuvius*, and if it does not produce quite so many trusses, the superb flowers more than compensate. *Vesuvius* is amongst zonal *Pelargoniums* what *Mrs. Marshall* is among *Fuchsias*. It is so universally and largely grown as to make us wish it had never been raised. The thousands in every large nursery are rather monotonous. *Coleus Hendersoni* is a favourite market kind; the rich golden tints of the leaf margins tell most effectively amongst Ferns, Palms, and the small foliage plants. The vast number of pots of *Mignonette* raised and of Oak-leaf *Geraniums*, of sweet-scented *Verbena* and of *Heliotrope*, show that there is existent a deep love or odorous plants—a very pleasant feature amidst the wide demand

for rich-coloured flowers. Some 8000 bulbs of *Tuberoses* annually grown give a supply of these richly-perfumed flowers for several months, the new *Pearl* being specially favoured as the finest double kind. A. D.

THE GARDEN FLORA.

PLATE CCLXXXVI.—ABYSSINIAN KNIPHOFIA.

(K. CARNOSA.)

The genus *Kniphofia* is exclusively African, and about twenty species belonging to it are known to science or introduced into cultivation; most of them are natives of the Cape, some occur in Angola, where they acquire gigantic dimensions, and others are natives of Abyssinia. Of the latter, *K. Quartiniana* is somewhat caulescent and a very stately plant, flowering in November and December. *Kniphofia foliosa* is perhaps the most striking of the whole genus, the flower-spike reaching from 7 ft. to 8 ft. in height, and the long, protruding stamens, of a blood-red colour, entirely hide the sulphur-yellow flowers, and give to the whole the appearance of a giant flower of *Metrosideros semperflorens*. *K. carnosa*, represented in the accompanying plate, was introduced by Schimper, who sent it from Adoa to the Botanic Garden at Carlsruhe, and it has now taken up its quarters at my Baden-Baden establishment for the introduction of new plants. The root-stock is *Asparagus*-like, and the plant dies down every winter; it begins growth in April, and takes till September to form its lovely flowers, which from a low, leafy rosette rise to the height of from 1½ ft. to 2 ft. Flower-stalks are pushed up in succession until cold sets in. It is scarcely possible to properly represent the colouration of the flowers, because the bright apricot-red is toned down by a glaucous bloom, the yellow anthers rendering the whole perfect.

Position and Culture.—Last summer I turned a plant outside, and in December gave it a slight covering of dry leaves, over which I put a board, and I now have the satisfaction of announcing that the plant is hardy, the root-stock being perfectly plump and safe. It does not want any particular care, but likes a well-worked rich soil.

Baden-Baden.

MAX LEICHTLIN.

THE ROSE GARDEN.

Marechal Niel Planted Outside a Lofty Conservatory.—"J. W." (p. 487) states his case with exemplary clearness. Could not he cut the knot of his difficulty thus: Remove sufficient stone under the soil and introduce the stem of his *Marechal Niel*, which he says must be planted outside. This would be far safer than planting outside and training the stem up 5 ft. of wall before introducing it into the house. No doubt the stem could be protected in various ways, but the worst of all such means of protection are that they are apt to be displaced when most wanted. Living Ivy could not be relied on, and, besides, the Ivy would rob the roots of the Rose very much indeed. Hay-bands are unsightly, though efficient; a wooden box with three sides, the open one placed against the wall so as thoroughly to encase the stem and shut the rain off, would hide the hay-bands and render the protection of the stem complete. Such a box, from 3 in. to 5 in. square, would suffice for the finest Roses that ever grew. It could be filled with shavings, saw-dust, or chaff, and if made water-proof at the top, would keep out any amount of cold. This would prove the next best and least unsightly arrangement next to carrying the stem through the wall at the bottom. "J. W.'s" plants on their own roots, from 9 ft. to 12 ft. long, would be admirably adapted for those styles of planting, and be likely to do well. Of course, the wooden case over the stems should be well made, painted, and dredged with sand on the wet paint, to make them look so much like stone as may be. Thus made and finished, they would be less unsightly than might be supposed. They might also be removed from May to November, or left on all the season, as thought best.—D. T. FISH.

York and Lancaster Rose.—This fine old favourite was plentiful enough before 1829, since which time I do not remember to have



seen it, though I have often made inquiries after it, and looked for it in collections at exhibitions, but in vain, while it has often also struck me that the collections met with there do not contain anything illustrating the class of Roses it so ably represents when it is to be had in a good form. I may, however, say that I never have seen a Rose admirer in the sense in which that term is now applied, and never could bring myself to give the Rose more than its share amongst other florists' flowers, of which I have witnessed the rise and decline of several during my lifetime, the most prominent in my youngest days being the Tulip and Pink, as the Dahlia, which has had a longer run than many, had scarcely begun at that time to receive attention. But again to the Rose; I think there was an old favourite of that day called Hay's Hundred-leaved, or something like that. Is this Rose still in existence? I think it would look as well as any of the Hybrid Perpetuals of the present day; but perhaps the most admired as being then scarcer was the old Blush China, which was usually found on a wall, while I duly remember seeing the crimson China budded on a standard with an old white Rose and some others, forming a feature that one seldom sees now. Roses had begun at that early period to be worked on the Brier, the most fashionable kind at that time being one called the Scarlet Moss, which, however, was not so good a red as the old Damask Rose Plentiful; but my object was merely to call attention to the merits of the old York and Lancaster Rose.

R.

THE CAPE ANEMONE.

(A. CAPENSIS.)

THE accompanying engraving was prepared from a fine specimen of this extremely rare plant that lately flowered at Pendell Court, Bletchingley. It is very distinct from the Wind-flowers of our northern climes, yet anyone could recognise it as

an Anemone at a glance. It is a very handsome plant of perennial growth, with stems half shrubby at the base. The leaves, which are evergreen, are of firm texture, and beautifully divided into numerous sharply toothed segments, and measure from 1 ft. to 1½ ft. across. The flower-stems, which are stout and erect, rise from 1 ft. to 1½ ft. above the foliage, and each bears a flower 3 in. in diameter, composed of numerous narrow petals arranged in three rows, the inner pure white, the outer tinged with violet-purple; in the centre is a cone of orange-yellow stamens and pistils, which contrast finely with the petals. The flowers expand widely in the daytime, but close towards evening. The roots more resemble those of a Clematis than an Anemone, and form a sort of connecting link between the two genera. It is an old introduction, but, like many other Cape plants, has become very rare, the Pendell Court plant being probably unique in this country.

Cape Anemone (*A. capensis*).

It has several synonyms, the chief being *Pulsatilla africana*, *Atragene capensis*, and *Clematis capensis*. W. G.

THE FRUIT GARDEN.

FOXY AND SLIMY GRAPES.

SOME remarks in a recent number of *THE GARDEN* (p. p. 404-5) are so foreign to what I should suppose the good judgment of those who know anything about our native Grapes, that I cannot omit to

say a few words. "Sylvestris" says the "Isabella Vine is to be highly recommended for its rampant growth as an arbour or arcade climber, but its fruit, although handsome, is generally disliked, because of its sliminess and peculiar flavour;" and the editor states in his notes of Mr. Roe's book that "it is a hard task to change the poor little foxy native berries into Grapes, but we have no doubt it will be done." Oh! Mr. Editor, you are almost as bad as the late Prof. Lindley, who said the Oranges of the Americans were a hard fruit, which scarcely deserved the name of an Orange—the Maclura or Osage Orange being the fruit referred to. As to the sliminess and peculiar odour of the Isabella, the fact that good fruit sells in our markets for about the same price as ordinary Black Hamburgs and Californian Tokays at the season of their ripening (October) shows that all the sliminess they possess is no detriment to their value. The remark reminds us of the appreciation many of our people have today of the Mushroom, who call them "toadstools," and often ask

if they are fit to eat; but the estimation your correspondent has of the Isabella is perhaps natural, and, to some degree, correct, for your climate will never enable you to grow it in the open air to be much if anything but a slimy fruit. If you will give it a place in the Grapery you will find it not only a very different fruit, but one whose peculiar flavour will improve, like that of the Olive, upon better acquaintance.

But how could you, Mr. Editor, who have travelled across our continent, speak of our Grapes as little foxy berries? Here they are very large, some of them twice as large as a Hamburg. It is true they are what is called foxy, but yet they would be excellent but for the pulp which is so hard that they are often called "Bullet Grapes." It is this very foxiness, as you call it, in which our Grapes excel, for without it our improved seedlings would be as tasteless as the "flavourless Sweetwaters" to which "Sylvestris"

alludes. Nature gave us such an abundance of the raw material to work with, that it has taken time to work out the surplus and retain that delightful aroma which characterises the Brighton, Pocklington, Rebecca, and Catawba Grapes, of whose merits I gave you very recently some account. The Muscat of Alexandria and Canon Hall are good enough for me, are exactly to my taste, and the nearest approach to these superlative sorts are the Brighton and Rebecca; and as to beauty as well as flavour, the Pocklington is as large and handsome as a Golden Hamburgh, as rich and transparent as a "Thomery" Chasselas, and quite as sweet, with just enough of the peculiar flavour to class it among the very best Grapes, ripening as freely out-of-doors as the Concord or Brighton. We can now claim the black Concord, the amber Rebecca, the red Brighton, and the golden Pocklington as four of the finest hardy Grapes sufficiently early to ripen then tried, and sufficiently hardy to stand our temperature of 20° below zero—kinds, too, which I think may be grown in favourable places in your climate, and if not, deserving a house just as much as the Hamburgh; but do not say anything more about our little foxy berries. If you do allude to the original "Simon Pure," say huge Bullet Grapes. C. M. HOVEY.

[We speak from experience. Perhaps during these ten flying years something has been done in raising Grapes, but there was a vast difference between the varieties of native origin and the European.]

THE ORCHARD HOUSE.

At the present season it is necessary above all things to keep the trees perfectly clean and free from insects. Much in this way can be accomplished by a vigorous use of the syringe or garden engine night and morning for some time at least. This will keep down red spider and thrips. The black fly on Cherry trees is difficult to dislodge, but a dusting over night with tobacco powder or other insecticide, and a powerful stream of cold water thrown upon it by the garden engine early the following morning, will generally be found to subdue it. Should this and other means, however, fail, repeated fumigation with tobacco in some form will always prove effectual. In large structures like orchard houses, tobacco paper is to be preferred to pure tobacco, on account of its price, and when the former is of good quality it is equally effective. Fruits of all kinds will now be swelling fast, and the necessary disbudding and final thinning will have mostly been accomplished. But occasional stopping of over luxuriant shoots will still be necessary in order to encourage those which are weaker and in positions where they are required. The renewal of the surface dressing of trees in pots should also now have attention. It should be composed of rich and suitable materials. Most of the artificial fertilisers are best applied in a liquid form. But an excellent surface dressing may be composed of about equal portions of sound clayey loam and sheep droppings, and a few handfuls of gas lime if that can be readily had; the latter will have the effect of freeing the compost from worms and the larvæ of insects. This compost should have been turned several times before it was required to be used. Where sheep manure cannot conveniently be obtained, that of the horse or cow, or even the pig, may be employed with equally good results.

Before applying the surface-dressing all loose and effete matter should be removed from the surface of the pots, taking care to injure the roots as little as possible. The surfacing should be then applied, pressing it firmly down, and supporting it with a band of lead, zinc, or even turf. Where the roots of trees in pots are allowed to enter the bed of prepared soil on which they are placed, it will not be advisable to move them in any way for some time to come, as the check might cause a portion of the fruit to drop off. Should the trees, however, be growing more luxuriantly than is desirable, water may to some extent be withheld, and to such trees stimulating surface-dressings or liquid manure in any form will not be necessary. But, generally speaking, trees in pots, as well as those planted in borders and bearing heavy crops, will now require an abundant supply of water in order that the fruit may receive no check in the early stages of its development.

Orchard houses may still be closed moderately early in the afternoon, so as to enclose a portion of solar heat. But it should be borne in mind that the Apricot, the Cherry, and the Pear, &c., will not submit to so close an atmosphere, nor yet to so high a temperature as the Peach and the Nectarine. Nor is a high temperature at all necessary in the case of any of the fruit trees usually grown in this structure, as the original idea as well as the present purpose of the orchard house is the protection or preservation of the crops which it contains, but not the forcing or the hastening of the ripening of the same. The construction of the orchard house, therefore, necessarily

differs very materially from that of the forcing house. A moderately moist and close atmosphere at the present season, however, tends greatly to assist in the development or swelling of the fruit, but this should not be carried to excess, and abundance of air should be given when the weather will permit. Great care should, however, still be taken to prevent any tree being placed in a draught or current of cold air, so that unless it be during calm and mild weather, in addition to the roof ventilators, air should only be admitted on the lee side of the house. With orchard houses, as well as with other plant structures, a serious mistake is often made in allowing the temperature to become too high from the influence of the morning sun, before air is admitted. When this is at last done, a sudden rush of cold air envelops the plants, and cannot be otherwise than injurious to them; it is much better to admit a small portion of air by the roof ventilators as early as six o'clock, and increase this as the day advances, or, should the weather undergo an unfavourable change the house may be again closed if considered necessary.

As regards the Apricot, Peach, and Nectarine, what is known as the stoning period will soon arrive, when the fruit will for a time appear to make little or no progress, and, despite every care, a few may drop off. To counteract this tendency, however, as far as possible, any thing like a check, by allowing the trees to become too dry, or even too wet, should be avoided. The fruit of Fig trees in pots will also be swelling, and ought to have abundance of water; strong shoots should also be repeatedly stopped or pinched back. Where fruit trees, such as the Peach and Nectarine, are planted out in borders of prepared soil, the surface of the same should now be mulched with any light, rich material, such as ordinary stable yard manure or Cocoa-nut fibre—materials which will tend to check evaporation and render less water necessary, and when such is required and poured upon the mulching, it carries the fertilising properties of the latter down with it to the roots. P. GRIEVE.

Bury St. Edmunds.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Fruit Prospects.—I am an old man, and have lived many years in this county, but only remember one year—ten or twelve ago—when I saw so profuse a bloom on fruit trees as the present year, especially on the Apple and Pear. I look down from my upper window upon an orchard about an acre in extent and see little else but a vast sheet of blossom. An immense Pear tree has, I suppose, a situation it likes, for its roots are washed by a small river, and the appearance of the tree is precisely that of being covered with snow when it has fallen in calm weather, and is piled upon the most delicate branches. Last year I saw little from my place of observation except rusty leaves and half-developed fruit. It appears, however, that the trees did their work in some quiet way. I consider it safe to predict a favourable Apple season, but it is not safe with regard to Pears. We had, unfortunately, one severe frost on or about the 10th. This cut down all the Potatoes up at that time, and, I fear, took effect upon the young Pears just beginning to set, for the Pear is nothing like so hardy as the Apple, and is also earlier; in fact, some kinds of Apple trees are only just coming out. Six young trees that I transplanted in autumn are barely out yet, which may be due to the moving. They are, nevertheless, a mass of bloom, though I hardly expect much fruit upon them. It will be the same with regard to wall fruit. Peaches will have suffered much unless very carefully protected, for about that time the fruit was then actually setting. As to general crops, they look healthy, but very thin, doubtless from the want of rain; little or none fell here in April.—W. T., Dorset.

Low v. High Night Temperature for Muscats.—Mr Simpson, of Wortley, has long been an advocate for low night temperatures for setting Muscats, say from 50° to 55°. I was pleased during a recent visit to see that they are this year no exception to the rule, being set equally well as Hamburgs. On bright days during the flowering period the syringe is freely plied amongst the bunches, and under sun heat the temperature is allowed to rise as high as 90°, but when dull it is kept much lower, thus effecting a great saving in fuel, and fully illustrating that good Muscat Grapes can be grown in a much lower temperature than is often recommended.—G. S., Sandbeck Park.

Early Grapes.—Having seen it stated that the climate of Lancashire is unfavourable for the cultivation of Vines even under glass, allow me to give this year's result. Our Vineries are on the ridge and farrow principle, with a south aspect, and are amply supplied with hot-water pipes, and ample means are provided for ventilation. I commenced forcing on December 5 last, and cut the first bunch of Black Hamburgh Grapes on the 7th instant, just five months from the time of starting. The fruit is well coloured and the berries large. The crop too is a very good one, the bunches

varying from 1½ lbs. to 3 lbs. each in weight.—THOS. HAND, *Eagley Bank, Bolton.*

The Vines of Soudan.—Seeds of these curiosities are now offered by Messrs. Vilmorin-Andrieux & Co., of 4, Quai de la Mégisserie, Paris, at 5 francs the seed. They are described as follows after the notes of the discoverer, M. Lecard: *Vitis Lecardi*, à feuilles laciniées, très-fertile, raisin violet-noirâtre; *Vitis Faidherbi*, très-fertile, raisin couleur jaunâtre; *Vitis Hardyi*, très-curieuse et fertile, raisin rosé; *Vitis Chantini*, très-productive, feuilles entières, blanchâtres et cotonneuses, raisin violet-clair; *Vitis Durandi*, feuilles rondes, raisin noir. They also offer *Vignes chinoises*, *Spinovitis Davidi*, *Vitis Romaneti*.

THE KITCHEN GARDEN.

WINTER AND SPRING BROCCOLI.

EVERY precaution should be taken to preserve these from frost, for if once the heads get frozen through, they are as a rule useless. By laying down Broccoli plants before sharp frost sets in, one is almost sure to preserve the crop. It only takes a short time to lay down a large breadth, and any garden labourer can perform the work if shown how it should be done. In laying two men ought to be employed. Commencing at one side of the plantation, they should take out an opening with the spade a few inches in front of the line of plants, making the soil level to lay them on. Both men must put their spades below the roots of the plant on the side opposite the opening, and turn the plant over upon the soil just levelled, pressing it down firmly with the foot, and making it lie nearly flat on the ground, for I find the nearer the top of the plant is to the ground the less is it liable to be damaged by frost. Strip the old leaves off to within 6 in. or 7 in. of the top, and cover the stems with soil as far up as possible. Lay down the second plant in the same way, and continue the operation until the plantation is wholly laid. Broccoli should have a good space between the plants so that they may fully develop their leaves, and the stems have an opportunity of growing strong, for if planted too closely they draw up weak and spindly, and the stems become soft and spongy, and to be destroyed by frost if great care be not taken to protect them during severe weather. On the contrary, if the plants have plenty of room the stems grow strong, and become so well ripened, as to withstand frost. I plant a good deal of my Broccoli between rows of Potatoes, which are 2 ft. apart row from row, and after moulding up the Potatoes I plant my Broccoli from 18 in. to 2 ft. apart, which gives them plenty of room to make strong plants, without which a fine crop cannot be expected.

By laying my Broccoli in the autumn, I have preserved my entire crop of nearly 1000 plants, and have lost scarcely one, while other Brassica crops have been nearly all killed. If litter from the farmyard can be had, pack it round the stems of the plants after they are laid, or, better still, dry Fern, if it can be had. I grow the following varieties, which, I find, carry me through the winter and spring till early in the summer, viz.: Walcheren, Early White Cape, Early Purple Cape, Snow's Winter White, Veitch's Self-protecting, Carter's Mammoth, Leamington, Adams' Early White, Knight's Protecting, Carter's Summer, Cattell's Eclipse, and Carter's Champion. These I have grown for several years, and always find them to yield good crops.

WILLIAM CHRISTISON.

The Rookery, Bromley Common.

THE ASPARAGUS COMPETITION.

THIS will be held in the horticultural department of the Bath and West of England Society's Show at Tunbridge Wells, commencing on Monday, June 6. Notice from those desiring to compete should be given to the secretary of the horticultural department, the Hon. and Rev. F. T. Boscawen, Show Yard, Tunbridge Wells. All exhibits should be staged on the morning of Monday, not later than Twelve o'clock. The following prizes are offered for the first year's exhibition, and are (except the last two for market growers in Kent) open to growers in any part of the United Kingdom.

Prizes for Gardeners in Private Places.

For the best bundle of Asparagus grown by the exhibitor: 1st prize, £4; 2nd, £2 10s.; 3rd, £1 10s.; 4th, £1. The bundle of Asparagus is to consist of sixty heads. The prizes will be given to the largest Asparagus, provided it be in all other respects unobjectionable. Prizes will not be given where, in the opinion of the judge, there is no merit. The Asparagus must be free of earth, and the bundles will be opened by the judges in all cases where they think it well to do so. No imperfect or "double" heads will count.

Prizes for Amateurs not Employing any Regular Gardener.

For the best fifty heads, £2 10s.; second prize, £1 10s.; third prize, 15s. Grown by the exhibitor.

Prizes for Cottagers.

For the best twenty-five heads grown by the exhibitor, £1 10s.; 2nd, £1; 3rd, 10s.; 4th, 5s.

Prizes for Market Growers.

For the market grower who shall exhibit the best three bundles, each containing one hundred heads, £5 5s. This prize is offered by the Bath and West of England Society.

For the market grower in the county of Kent who shall exhibit the two best bundles of Asparagus, each containing one hundred heads: 1st prize, £3 3s.; 2nd, £2 2s.

Ceilings of Mushroom Houses.—Ceiled as Mushroom houses generally are, they are not only bad as regards retaining an equable degree of heat and moisture, but they are troublesome to keep in order; after a time down comes the plaster from the rotten laths and rafters, as, owing to the damp that rises and becomes absorbed, fungus is generated, and the wood, charged with mycelium, cannot last long. A Mushroom house to be really serviceable should be so constructed that neither sun nor outer air can play on the walls, or if so they should be hollow, or the space between filled with dry sawdust, so as to make them more non-conducting, as it is impossible to grow Mushrooms in a structure where the temperature is ever varying like that outside. An arched cellar under a building makes a good Mushroom house, and if I had to construct one I should make it cellar-like underground, and arch the top by laying bricks in cement and then earth it over. In this way it might run under one of the back sheds behind the houses. If I had to use a shed for Mushroom growing instead of a lath and plaster ceiling, I should have one made with plain tiles bedded in cement and slightly arching, and on the roof so formed I would place a foot or so of sawdust and over all the rafters and slates. A roof made with tiles in this way is practically imperishable, and by washing the inside with liquid cement, may be made non-absorbent, and so may the walls—a great gain, as the moisture then remains in the air where it promotes the growth of the Mushrooms. Why these do so well in caves is because the atmosphere is moist and still and the temperature regular. If we find fungi growing on wood or walls in cellars, it is always under these conditions, but ventilate, and you soon stop the spawn from running.—S. D.

Cucumbers Failing to Swell.—Has "A. G." (p. 460) got a new sort? There are some Cucumbers that have a trick of not swelling. We have one this year, which I forbear to name, though it is largely advertised, grown with Telegraph, Tender and True, and Munro's Duke of Edinburgh, which all do remarkably well; this sort fails—not wholly, but nearly so. For one fruit of it that swells the other varieties finish a dozen or more; I have no idea why. The plants grow and show well, but the fruit fails to swell. But if "A. G." is growing the sorts he used to succeed with, then I should imagine his failure arises from want of heat, for it is really astonishing how much heat most Cucumbers will not only endure, but enjoy. The more heat, with 90° as a maximum, they can have the stronger will the plants grow, and the faster will the fruit swell off. The fault can hardly be in the soil, as there are few loams too poor to grow Cucumbers, especially when enriched with manure water. Can the roots be too hot or too dry? Hotbeds occasionally over-heat; this not only scalds or burns the roots, but also over-dries them frequently, and dryness will have the same effect on the non-swelling of the Cucumbers as a chill from cold. "A. G." had better test the degree of warmth and the amount of moisture in his frames and report how he finds them. First of all, however, he should assure himself that his varieties are good, fruitful ones. Telegraph, Munro's Duke of Edinburgh, Prince of Wales, and Tender and True are sorts that may be relied on to swell their fruits freely under fair treatment and suitable conditions.—D. T. FISH.

Asparagus One Year Old.—Last spring, the last week in April, a plot of one-year-old Asparagus plants was planted in Sir Henry Thompson's garden at West Molesey, on the banks of the Thames, in sandy soil; the growth made during the first six months in the open plantation surprised us, but we were not prepared to find the shoots of the first spring after planting ½ in. in diameter, and what would be called fair Asparagus, as Asparagus is generally grown. About the anniversary of the first planting, in fact, and one year from that time, shoots of eatable Asparagus of fair quality were gathered from the beds; the plants used were a year old. Of course, such Asparagus will not be cut for use this year, and we only

mention the fact to show what progress may be made when the conditions of good culture are observed. Plants were set out at a distance of 3½ ft. each way in shallow trenches, in soil slightly enriched, but not specially so, as is usual in our gardens. No salt or other dressing has been given since. We notice in these rapidly-rising shoots the tendency to break into buds and leaves, proving the need of a certain amount of blanching to prevent this till the shoots have attained a fair size and succulent quality. It does not matter during the present year, but when the Grass is fit to cut, little mounds of fine earth must be raised over the crowns to blanch the shoots a short distance.—*Field*.

Witloof for Winter and Spring Salads.—This is indispensable where salads in winter and spring are in request, and those who have not hitherto grown it should make a beginning by sowing some seed at once. It should be sown in rows 1½ ft. apart, thinning out to 1 ft. in the row. It is not at all particular as to soil, and will force fit for use in any dark cellar or under the stages in a warm house, and may be had in quantity from Christmas to May by transplanting a few roots every week from the open ground. We have lately had a splendid crop from the floor of a Potato shed where the roots were simply laid in old Mushroom manure, and we have now a quantity of roots left in the ground and covered with long stable litter; in fact, few crops so well repay the slight attention needed to get it perfectly blanched and crisp, and in a season like the past, when out-door vegetation is so much cut up, it is quite a boon.—*J. GROOM, Linton*.

Laying Winter Broccoli.—"S. D.'s" remarks (p. 455) on this subject are most seasonable and appropriate. Those who neglected to lay their Broccoli last October have now no Broccoli left. There may be a few exceptions, but such is the fact as a rule. Nevertheless, the inlaying of Broccoli involves a great sacrifice of size. This reduction of size was never more marked than this season. Possibly some of it may be owing to the frost. It would be interesting to have the experience of others on the point. But I never remember Broccoli, on the whole, being so small as this spring. It also comes in with a rush, almost all varieties together.—*D. T. FISH*.

TREES, SHRUBS, AND WOODLANDS.

CAMELLIAS AND AZALEAS HARDY.

CAMELLIAS at the present time show the effects of the past winter less than common Laurels; the latter in some places are nearly killed and defoliated in others, whereas Camellias only show a few browned leaves. It is to be hoped, therefore, that they will be more largely planted out-of-doors than they have been, as, independent of their flowers, they are equal to any evergreen in habit and superior to most as regards foliage. The best time to plant them is early in spring before they start into growth, as then they become thoroughly established by the autumn. In turning them out it is not advisable to interfere with the ball beyond removing the crocks and liberating the roots there, as it is impossible to straighten the others without breaking them. As they cannot get far beyond the ball of earth during the first year, it will be necessary to water freely all through the summer in order to keep that part moist, and to make sure of doing this it is a good plan to form a basin-like receptacle around the stem, that the water, when given, may not get away without doing its work. A mulching helps to intercept evaporation, and therefore maintains a more equable condition of the ground, which is favourable to the formation of roots. Where peat can easily be got, that will be found of great use to mix with the loam, as Camellias are very fond of it, but failing that, leaf-mould is the best substitute, and this should be given freely and be well incorporated with the loam. In cases where the soil is good naturally, no preparation is required, but, like all other matters pertaining to gardening, there is nothing like a good start in the turning out of Camellias if they are expected to do, and being of some value they are worth taking a little trouble with to secure satisfactory results. Although perfectly hardy, as Camellias have proved themselves, they should have sheltered positions, and if where they can get shade all the better, so long as they are far enough away from trees as not to be robbed by them.

Not only are Camellias quite hardy, but most of the Azaleas are equally so. I have just seen a plant of the old white standing in a very bleak and exposed position that has not a leaf the worse for the cold, and we all know how searching this was in the early part of the year. The pretty little Azalea *amœna* will endure any amount of frost, and yet that is seldom seen outside a greenhouse, but when planted it forms the neatest of beds. If clumps of Rhododendrons were edged with this and the white Azalea they would form nice margins and greatly heighten the effect, as among Rho-

dodendrons there is a paucity of light colours, and none, I believe, that have flowers pure white. S. D.

THE WEYMOUTH PINE. (*PINUS STROBUS*.)

THIS is very common throughout the Northern States of America and Canada, large forests being wholly composed of it, principally on the sides of hills, and where drawn up, through standing closely together, in suitable soil it reaches a height of from 120 ft. to 150 ft. It is the White Pine of the American backwoodmen, so called from the light colour of the timber, and not from its aspect, as in the case of the White Spruce (*Abies alba*). The wood of the Weymouth Pine is valuable, especially for masts and spars in ship building. The leaves of this Pine are of a glaucous hue, and the cones from 5 in. to 6 in. long. The cones of this, and also those of several allied species, such as *P. excelsa*, *monticola*, and *Lambertiana*, are of a peculiarly loose open character, more nearly resembling those of some of the Spruces than of true Pines, a resemblance heightened, too, by their being strictly pendulous. The bark of this Pine is strikingly smooth and of an ashen-grey colour. Although not a rapid grower, the Weymouth Pine succeeds well



The Weymouth Pine (*Pinus strobus*).

almost anywhere, and when not drawn up forms an open pyramidal tree, but apt even then to lose the bottom branches. It was introduced early in the last century, and was extensively planted at Longleat by Lord Weymouth, hence the name. For planting as a contrast to some of the darker-leaved kinds, this Pine is very effective owing to its bluish tint, while its near ally, *P. monticola*, is of a still more glaucous hue, and the other day we saw a variety of it in Messrs. Cheal's nursery at Crawley, which possessed a decided silvery lustre, a tint which will render it particularly desirable for planting in contrast to the grassy-green foliaged Pines, such as *P. insignis*. As in the case of many others, there is a diminutive variety of the Weymouth Pine, known as *umbraculifera* or *nana*; it forms a dense mass, and increases in size so slowly, that its growth is almost imperceptible. Of this variety there was a plant at Bicton that bore cones every year about 1½ in. long, but in every other respect like the species. ALPHA.

Berberis stenophylla.—Amongst hardy shrubs now in flower, few are more graceful or pleasing than this *Berberis*, which, in the shape of large bushes, is remarkably effective, either grown as single specimens upon grass or occupying the front rank in shrubberies. Its slender narrow-leaved shoots are produced on strong plants from 3 ft. to 4 ft. in length, closely studded with the brightest of lemon-coloured flowers, rendering the plant remarkably showy. It is also perfectly hardy, a circumstance which makes it specially valuable. Beautiful as *B. Darwini* is, with its rich profusion of orange yellow blossoms, it is not reliable, for during the

past four seasons, if not killed down to the ground line, it has been greatly disfigured. I find *B. Jamiesoni* a hardy and superior sort, producing an abundance of lemon-coloured flowers. It would add greatly to the effectiveness of our shrubberies were the finer varieties of *Barberries* more freely planted in them than they are at present; they are more the exception than the rule.—GEO. WESTLAND, *Witley Court, Worcestershire*.

Double-flowering Peaches.—There is a strange effectiveness about these which makes them very precious for the garden landscape, although our climate does not in all parts allow them to make good growth and bloom. In the London district this year they have been very handsome, both in bud and blossom. The curious suddenness of the effect, so to say, of a brilliant double Peach running out of a group of shrubs is such as cannot be got from anything else. Anyone having artistic ideas in planting would find such Peaches most useful. Some pretty specimens may be seen in Kensington Gardens, and doing fairly well; but they are mixed up with the mean undergrowth, which spoils the good effect of all the things in our shrubberies. Such plants should be allowed to tell their own story, not only as regards the colour of the flower, but as regards freedom from mean and shabby surroundings, which confuse the eye and prevent it from realising the full beauty of these valuable trees. There is a good variety of colour, deep and bright crimson, and also a pure white, which comes in to help the many white flowering trees of early May, and yet it is quite distinct from all. Warm, well-drained soils appear to be essential to the healthy growth of double Peaches. If such good results are attained near and within the circle of smoky London, naturally far better would be obtained in country gardens in favourable situations.—V.

The Pearl Bush (*Exochorda grandiflora*).—Although in some places around London severely injured by the frost, this handsome shrub is now in flower and very showy, but the spring frosts seem in many cases to have injured the blossoms. It was at one time said to be impossible to strike this plant from cuttings. Have any of the readers of *THE GARDEN* ever succeeded in propagating it in that way?—ALPHA.

The Silvery Kerria.—Here this is in flower on a south wall. The blossoms are smaller than those of the double variety, but very abundantly produced, and the growths are slender and altogether more graceful than those of the ordinary *K. japonica*. I observe that on our plant some shoots have sported, or rather reverted, to the plain green form.—J. G., *Linton*.

Shrubs in Cornwall.—I have a plant of *Exochorda grandiflora* in flower which has stood the winter against a wall under a mat covering. *Lapageria rosea* likewise stood well, and *Mitraria coccinea* is doing well. *Embotrium coccineum* is 18 ft. high, and in full bud. It will be a perfect beauty. It has stood the winter well.—GEORGE MADDEN.

THE FLOWER GARDEN.

THE AFRICAN KETMIA.

(*HIBISCUS AFRICANUS*.)

THIS pretty *Hibiscus* is not usually included in a selection of garden annuals, though its handsome flowers certainly entitle it to a place



Hibiscus africanus.

among hardy plants. It grows 1 ft. or more high, and has coarsely-toothed leaves, some of which are deeply three-lobed. The flowers

are very showy, being 2 in. or 3 in. across, and of a rich golden yellow, with a conspicuous crimson-brown blotch at the base of each petal. They, however, open only in fine weather, and then they remain expanded but a few hours; hence it has acquired the name of Flower of an Hour. There are two or three varieties of it, major and calisurus being the best; both of these have larger flowers than the type. Like its less showy congeners, *H. Trionum* and *H. vesicarius*, the Bladder *Ketmias*, it often sows itself in light soil, and on account of its plentifulness even becomes a weed in some gardens. Ordinarily it is sown and treated as other hardy annuals; it flowers from July to September.

W. G.

THE PARNASSIAS, OR GRASS OF PARNASSUS.

IN many of our moist heaths and bogs the Marsh *Parnassia* (*P. palustris*) is not unfrequently met with, and a very pretty plant



Parnassia palustris.

it is—quite handsome enough to cultivate, particularly in gardens in which there is a suitable moist spot where it could grow as in its native haunts. There are, however, three other species, natives of North America, that are quite as showy as our native species, and the newest kind (*P. fimbriata*) is even more attractive, as it has larger flowers, with peculiar fringe-like appendages to the petals. It has kidney-shaped root leaves, resembling those of *P. asarifolia*, another hardy species, which grows about 9 in. high, bears similar white flowers, but without the singular fringes to the petals. The Carolina Grass of Parnassus is the other species, and this only differs from *P. asarifolia* in the leaves being oval or heart-shaped; it also flowers about the same time, which is usually from the beginning of July till the end of August. These *Parnassias* thrive best in a moist, peaty soil or spongy bog, such as exists by the sides of streams or pools, and, being all perfectly hardy, give no trouble after being once planted.

W. G.

Button-hole Flower Water-Bottles.—Allow me to direct attention to an invention of mine for keeping flowers fresh when worn in ladies' hair or in button-holes, also for flowers (cut) at

shows. The button-hole flower water-bottle is held collapsed between the finger and thumb while held over a tumbler of water, and thus filled it is then placed on the end of the Rose or other flower.—JAMES MACKENZIE, *Camden Quay, Cork*. [These flower-holders are little green bottle-shaped india-rubber sacks.]

NOTES FROM DRAYTON-BEAUCHAMP.

The fine dry spring which we have had this year has been favourable to the flowering of many bulbs which have done badly for some years past. This has notably been the case with the genus *Tulipa* and *Fritillaria*. For years past I have utterly failed to flower the grand old *Tulipa Gesneriana*, but it is just now a blaze of magnificent bloom. We are all deeply indebted to the kindness of Col. Trevor Clarke for the liberality with which he has distributed this fine species. *Tulipa maculata* and *T. Oculus solis*, which have been blind for several years, are also about to bloom freely. The variable *T. Didieri*, from the valleys of Savoy, is also blooming well; so is its sub-species *T. Billetiana*, a curious variety with greenish-yellow flowers, black stamens, and a blue-black eye. *T. spatulata*, which I received from Mr. Groves, of Florence, a year or two since is also blooming for the first time; in colour it much resembles *T. Billetiana*, but the yellow is almost free from the slight freckling of red which is found in the latter, and the eye is a curious drab colour. *T. saxatilis* is a lovely species, with flowers of a soft pink with a yellow eye. It lasts in bloom longer than any species I know. The species introduced by Mr. Elwes from the neighbourhood of Teheran, and which may be a form of *T. violacea*, closely resembles *T. saxatilis* in bloom, but the flowers are much smaller and the leaf is totally different. It has none of the glaucous glaze so conspicuous in the latter species, and has a well-marked, whitish margin, which is absent in *T. saxatilis*. I can see but little difference between *T. altaica*, received from Dr. Regel, and *T. Schrenki*, procured from the New Plant & Bulb Company at Colchester; both have pretty self-coloured, cherry-red flowers, and bloom at the same time. *T. patens*, though closely allied to, is, I think, distinct from *T. biflora*. It blooms at least a month earlier; in fact, it is the earliest of all Tulips, coming out almost with the Snowdrops, and has a smaller and paler flower. *T. iliensis* is a pretty little yellow Tulip, but comes painfully near *T. triphylla*, which it precedes by a week or two. I fail to detect in this species the odour mentioned by Mr. Burbidge. Amongst the other species and varieties which I have bloomed this year are *T. sylvestris* and its handsome Grecian ally *T. orphanidea*, *T. elegans*, *retroflexa*, *fragrans*, *Celsiana*, *stellata*, *præcox*, *Haageri*, *Eichleri*, *Greigi*, *Kolpakowskyana*, *acuminata*, *viridiflora*, and *carinata*, *scabris-capæ*, and, I think, *Bithynica*. Amongst those which I have failed to bloom are *T. maleolens*, from Florence, for which I am also indebted to the kindness of Mr. Groves; *T. pulchella*, of which I only possess now one sickly bulb; *T. Biebersteiniana*; *Armena*; and a form which I found two years since on the mountains at Pancorbo, and which is probably *T. transtagana* of Brotero. The bulbs were very small and have not yet got strong enough to bloom.

Fritillaries have been unusually floriferous. I have bloomed the following species: *pyrenaica* in five vars., *lutea*, *delphinensis*, *tenella*, *ruthenica*, *latifolia*, *parviflora*, *olympica*, *montana*, *racemosa*, *tristis*, *græca*, *dasyphylla*, *acamopetala*, *Armena*, *recurva*, *lanceolata*, *Thunbergi*, *Sewerzowi*, *Ehrharti*, *lusitanica*, *oranensis*, *pallidiflora*, *involucrata*, *Meleagris* and *Meleagris fl.-pl.*, *Burnati*, and *tombæensis*. I received the latter under this name from M. Frœbel, of Zurich; it appears to come very close to *F. Burnati*. Amongst those which I have failed to bloom are *F. atro-purpurea*, *biflora*, *pudica*, *Karelini*, *persica*, *liliacea*, and *macrophylla*. One of the prettiest bulbs I have bloomed this spring is the white variety of *Scilla italica*, from Mentone, for which I am indebted to Mr. Burney, of Wavendon. It is the purest white and deliciously sweet scented. The white var. of *Scilla umbellata* from Biarritz is also now in bloom, and is very delicate and pretty. I specially prize this plant, as it was rescued for me by an adroit *coup de main* of Mr. George Maw, when all the rest of my Biarritz treasures were destroyed two years ago at Irun by the ruthless wretches whom the *Phylloxera* scare has called into existence. *Camassia Leichtlini* has flowered unusually well this year, both in the glazed pit and open border; and *Iris cristata* has been full of bloom. *Muscari Armeniacum*, *atlanticum*, and a very fine species which came to me through Mr. Maw from Trebizond with the rare *Ornithogalum Aucheri* are just now at their best. *Orchis sambucina* and *paniciflora*, and a very pretty pink species which I found on the rocks at the back of the Escorial, but have not yet identified, have been very pleasant to behold. *Arnebia echioides* is a blaze of black and gold, and *Corydalis nobilis* quite a tall bush of yellow and brown. The rare

Saxifraga cupetana has stood the winter well, but the cold winds, hot sun, and night frosts during the last few weeks have spoilt its beauty a good deal. *Hyacinthus Pouzolzii* is covered with its little spikes of vinous purple flowers.

H. HARPUR CREWE.

Drayton-Beauchamp Rectory, Tring.

INDIAN EREMURUS.

SOME five or six years ago some seeds were sent to a near neighbour by a friend travelling in India (collected, if I remember rightly, in the Punjab) without any specific name, and merely described as those of a plant producing a tall spike of pure white flowers. Three years ago three of the seedlings from the above-named seeds were presented to me, and after keeping them for a year under glass they were ultimately planted out in a small bed in the open garden, where they have remained ever since, without any kind of protection in winter, proving them to be perfectly hardy. This spring two of the three showed bloom spikes, but only one came to maturity, rising to a height of 4 ft. 10 in., the flower-buds thickly covering the upper 16 in. of the spikes. The first flowers opened towards the end of last week, and are pure white, of comparatively large size, one of them when flattened out having as near as possible the circumference of a half-crown-piece. They have prominent stamens, with rather conspicuous pale orange-coloured anthers, and as they quite touch one another all round the spike they form a very handsome white column of bloom, surmounted by 9 in. or 10 in. of unexpanded buds. This plant is, as far as I can judge, evidently one of the *Eremurus* family, and as I have sent a couple of pips to Kew to Mr. Baker, I hope he may be able to name it for me. One of the same lot of seedlings is also showing bloom in the garden of my friend, the Rev. Harpur Crewe. The fine tall *Eremurus robustus*, from Turkestan, is also coming into flower in my garden, the spike being now 5 ft. 6 in. in height, and will, I think, reach 6 ft.

Since writing the foregoing I have been informed by Mr. Baker that the plant is *Eremurus himalaicus*, an exceedingly rare species, which he has never before seen in a living state, but had described from dried specimens in vol. xv. of the "Proceedings of the Linnean Society" (p. 283). It is still in great beauty in my garden.

W. E. GUMBLETON.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Gentiana acaulis.—This succeeds best in ground rather inclined to be heavy. The situation in which it looks best is on rockwork or raised mounds, or as an edging to borders or walks; where seen in long lines its handsome blue flowers have a striking effect. The way to get the most satisfactory results is to use large flints or big pebble stones as a boundary to the border or walk, or let in hard bricks on end, and between these or the stones plant the *Gentians*, which from having such protectors will spread rapidly and soon become thoroughly established. Why they do so well with the stones is that the roots thread their course by their sides and under them, and, as is well known, there is always moisture there however hot and dry the weather may be. The proper time to plant *Gentians* is in early spring just as they begin to start, they may then be divided and increased to almost any extent, as every single piece with leaves if dibbled in with care will grow. By watering and shading for a few days or a week, transplanting may, however, yet be done, or if seed is obtained now and sown under handlights, and the plants, when large enough to handle, pricked out, a good stock may be got up for forming edgings next year. As the *Gentiana acaulis* is a sun-loving subject, and only expands its flowers under the influence of solar light, it is useless planting it in the shade, and being of such lowly growth it is a good plan where patches are made in borders to raise them a little, which may easily be done by means of three or four stones placed so as to hold up the earth, when, after a time, the plants will cushion it over and become a fine mass. If the soil should happen to be light, a little pulverised clay worked in will be a great help, as will also a watering with liquid manure when the plants are making their growth.—S. D.

Sub-tropical Planting.—Now when planting-out time is approaching, some may be glad to know how they may secure an effective and inexpensive sub-tropical garden, and for the benefit of such, allow me to say that about the most chaste arrangement I saw last year was a circular bed some 15 ft. across, in which was a central plant of *Eucalyptus globulus*, and equi-distant, over the

other parts of the bed, were six plants of *Ricinus Gibsoni*; the bed was edged with *Veronica incana*, the undergrowth being the large flowered Harrison's Musk. The deep bronzy foliage of the *Ricinus* was well set off by the bright yellow flowers of the Musk, the shade afforded by the former conducing to the finer development of the latter.—H. W.

Aquilegia glandulosa.—The Rev. C. Wolley Dod last year threw some doubt as to the hardness of *A. glandulosa*, the Forbes variety, which he said had never lived through the winter with him at Malpas. I therefore observed my stock of it in the open garden through the severe winter, and am glad to say that at least two-thirds have survived. One always expects some *Aquilegias* to get worn out, and may therefore consider the plant to be quite hardy. We have a large stock of seedlings raised in cold frames, partly from Messrs. Grigor's seed and partly from that sent out by Mr. W. Thompson under the name of *A. glandulosa jucunda*. These are just coming into flower, and I can see no difference between them. It follows, therefore, that Messrs. Grigor's variety is not the ordinary *A. glandulosa*, but, according to Mr. Thompson, *A. glandulosa jucunda*. Can any of your correspondents tell us where the old form is to be obtained and in what respects it differs from this beautiful Columbine? The two-year-old seedlings just coming into bloom bear much larger flowers than the older plants. I measured one to-day $3\frac{1}{2}$ in. in diameter—a grand flower. Its only rival is the American *A. coerulea*, which greatly resembles it.—BROCKHURST, *Didsbury*.

Wallflowers.—Last July a shilling's-worth of Wallflower seed was sown, and when the young plants were large enough they were pricked out into a highly manured bed consisting of sandy soil. The result is a splendid display of double flowers, varying in colour from the old-fashioned pale yellow through all shades of orange, brown, and buff; also stock coloured varieties, a pale ground dashed with purple; a very few single flowers are very large and brilliant. The blossoms are in huge masses, resembling the Brompton Stock in size. I have more than 100 plants and all handsome. Usually, the individual flowers of double Wallflowers are, I think, about the size of largish marbles; mine are as large as a florin. The seed was sold by a local nurseryman, and he advises no more to be sown; he says the plants will sow sufficient, and they will be handsomer.—MARK.

Hepaticas and Christmas Roses from Seed.—Your correspondent who enquires (p. 485) as to the right manner of raising seedling Christmas Roses and Hepaticas should gather the seed as soon as it is ripe and sow it immediately. Christmas Roses require to be watched closely, or the seed falls before it can be harvested. It may either be sown in the open ground in pans or boxes or broadcast in a frame. The latter plan is perhaps the safest, and is the one I prefer. A frame with a north aspect is preferable, as it is easier to preserve the soil in an uniform state throughout the summer as regards moisture. Water the soil moderately, and cover the seed lightly with fine sandy soil, making the surface firm and even, and finishing off by covering up thickly with Moss, which must remain on until the young plants appear above ground, or germination will be very uncertain. As a rule the seedlings will appear about the beginning of the new year, but sometimes not until early spring.—J. C. B.

French Spotted Pansies.—These are very useful for keeping up a long display of bloom and an endless variety of colours with but a minimum of labour. A packet of seed sown at once will produce hundreds of plants, that if transplanted on well enriched soil will make a tolerable sized garden gay for the greater part of the year. No plants repay generous treatment better than Pansies, therefore before planting them some of the best farm-yard manure should be deeply buried where they are intended to grow. They will keep flowering through droughts or floods if only a supply of rich food is within their reach, but they soon get mildewed and exhausted in poor dry soil.—JAMES GROOM.

Blue Anemones in the Wild Garden.—The Anemones to which allusion is made in *THE GARDEN* (p. 461) are simply growing in a wild state in a dell thickly wooded, and which slopes to the west. The soil is of a rather strong character. The double white and the blue are not quite so numerous as the old Wood Anemone, but they are, nevertheless, growing in quantities. A stream runs through the dell and empties itself into a large lake, giving the whole a very beautiful appearance. I may add that the Anemones get no attention beyond allowing the decayed leaves which fall from the trees in the autumn to remain on them.—R. OTLEY, *Daylesford*.

Saxifrages at Fettes Mount.—Of this interesting family of plants we have here upwards of 300, which make a magnificent display during this month and the next. Conspicuous among them are *cordifolia major* and *minor*, *ciliata*, *purpurascens*, and the neat little *virginensis*. There are also handsome specimens of such kinds

as *decipiens*, *cæsia*, *Webbiana*, *Stansfieldi*, and *corsicana*, and of the finer dwarf and Mossy-like varieties. The beautiful yellow flagellaris is likewise in full bloom, and is very effective. Altogether, the general appearance of the Saxifrage garden at present is most satisfactory, the different plants of which it consists having retained their lovely green and cheerful appearance, notwithstanding the severity of the winter to which all were exposed.—DAVID A. KING, *Fettes Mount, Lasswade*.

Polyanthuses and Primroses.—I send a large spike of a seedling Polyanthus, somewhat similar to the Oxlip, and a few choice seedling Polyanthuses. They are as easily cultivated as the common Primrose, and very effective mixed with them by the woodland drive or in the wild garden. I have also sent a few flowers of the alpine Wallflower, a fine yellow and dwarf hardy plant, very delicate in colour; likewise a few pretty little flowers of a greenhouse shrubby *Calceolaria* (*C. violacea*), not often found in cultivation.—S. ROSS, *Highclere Gardens*.

[People now seem everywhere alive to the charm of such elegant and richly-coloured varieties of easily grown native plants. The next step should be their separation into distinct and bold races, each used by itself in groups or colonies to secure simplicity and unity of effect here and there, if only to contrast with the mixture sure to become so common.—ED.]

Cowslips and Primroses.—Among the numerous articles of interest on spring flowers no one has spoken of the wonderful hardness and beauty of Webb's Giant Cowslips. They are of every shade, from brown, crimson, red, orange, to pale yellow. They alone were untouched by the late frosts and winds, which killed even the young Foxgloves and Violets down to the ground. The pretty Hose-in-Hose varieties are equally hardy, and increase as fast. I am anxious that the Cowslips should be mentioned, because by getting a packet or two of seed, at an expense of two or three shillings, these lovely flowers may be grown by the thousand in every park and garden. Once planted, they seed themselves and multiply very fast. The brightest and best coloured hardy Primrose that I have seen is *Crimson King*. Polyanthuses *Cloth of Gold* and *White Queen* have also been beautiful with us, but they were only planted out this spring.—H. B. H., *Aigburth, Lancashire*.

CARNATIONS AND PICOTEEES IN SUMMER.

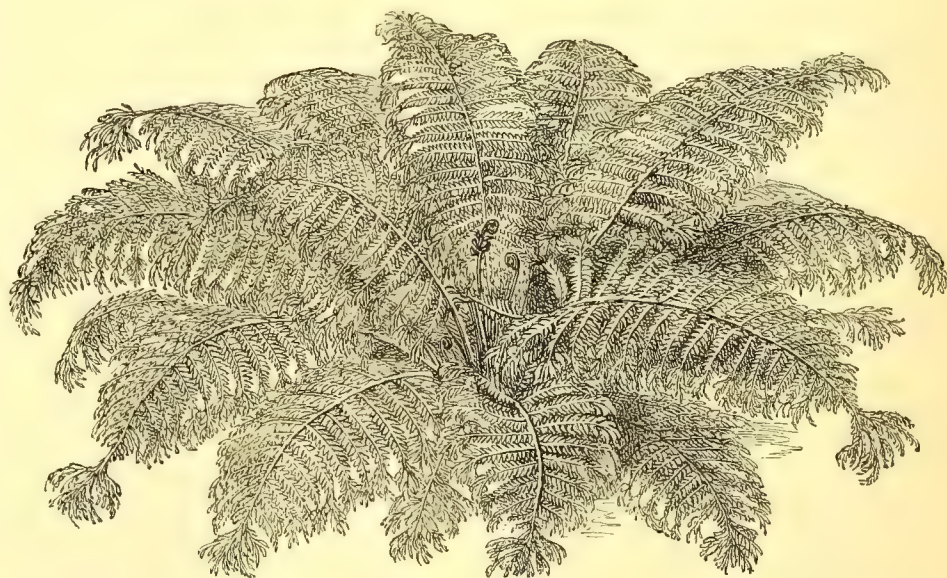
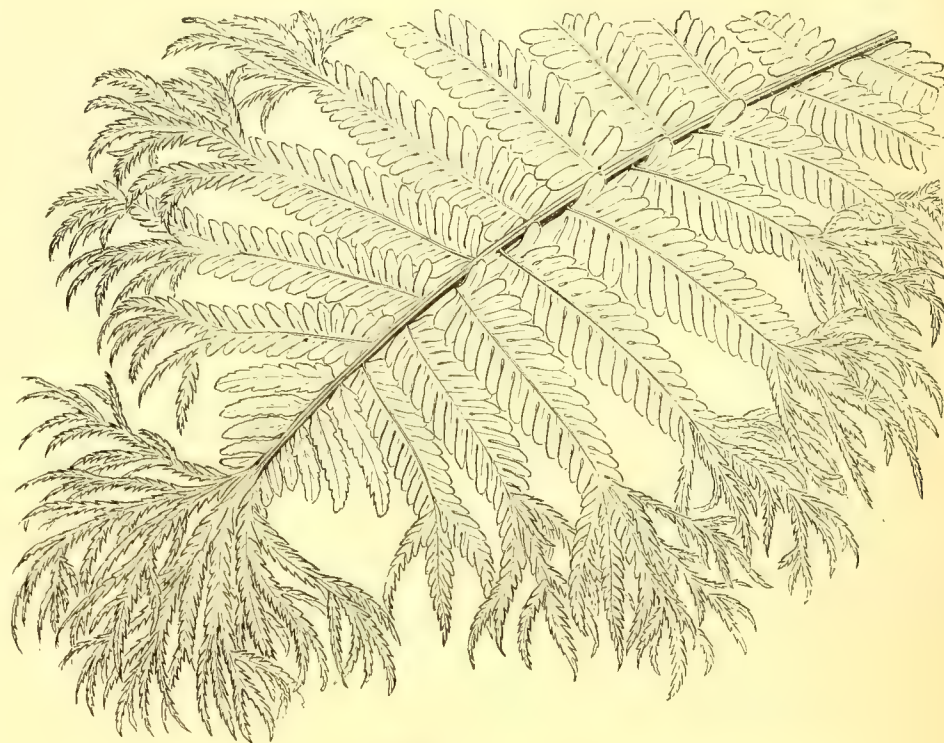
AFTER the pots have been placed out-of-doors the flower-stems will soon commence to spindle up, when sticks should be placed to them at once. The sticks should be about 40 in. long, and painted white for choice, as that colour is not so cumbrous and dull-looking as the everlasting green. Be careful to keep them tied up to the sticks, tying them loosely, for if tied tightly the stems will knee and bend, and finally break. About the end of June and beginning of July the flower-buds will be advancing, and then you will have to see about disbudding. If the top bud is pinched out, three may be left lower down, but if you want one fine bloom on each flower-stem you must pinch off all side buds, leaving only the one at the top. If you intend to save seed from the variety, it is best to follow the first direction and leave three or four lower down. Whilst the buds are swelling, a little weak manure water may be given now and then, but this must be done carefully and with considerable discretion, according to the nature of each individual flower, for reasons given in the article "Running" in a late issue of *THE GARDEN*. If the petals inside the unopened bud seem inclined to burst open the calyx or pod down one side, take a small, fine-pointed knife (the one described for layering in a previous issue is the best), and carefully cut down the calyx, at the other segments of the sepals, all round, being especially cautious not to injure the unopened petals inside; then tie round the calyx, about half way down, with a piece of bast or an india-rubber ring to prevent its splitting too far. Sometimes the petals will open too freely and spreadingly towards the sun; in this case the pot must be turned round to present the other side of the blooms to a similar influence. All the time the flowers are in bloom you must be careful to keep them watered, and if the sun is very hot and the atmosphere very dry, as it sometimes is in the south, it is a good plan occasionally to sprinkle the Grass, carefully avoiding the blooms. The best place to bloom the plants would be a light, airy, glass shed rather than greenhouse, fitted with shading blinds that can easily be taken off or put on, but if you have not this convenience the following is an excellent plan: assuming that your Carnation ground (be the plants in pots, on stages, or in beds) is under a north wall, and bounded by a path, erect a framework like a gallows 8 ft. or 10 ft. high parallel with the wall, and far enough away from it to cover all the plants. Place a dwarf framework of the same length and similar to the large one, 6 in. or 8 in. high, on the top of the wall, studded at intervals with hooks. Have a blind broad enough to reach the entire length of the

framework or gallows, and long enough to reach the wall when unrolled, made of some light shading material, fitted with rings at the lower end to hook on to the hooks in the dwarf framework on the wall. This should be drawn down every day when the flowers are in bloom at about 9 in the morning, and rolled up every evening at about 5.30, unless there are signs of rain, which it will ward off to a great extent both day and night. This blind should be quite portable and separate from the framework to which it is affixed each year when the bloom begins, and taken off and put away when the bloom declines till next year. The framework is of course permanent. Great attention must be paid to tying up the flower-stems as they advance. The stems must never get twisted at the root. Keep the surface of the soil stirred up and loose, carefully avoiding the rootlets, which must on no account be disturbed during the operation. About the beginning of June remove a little of the surface soil carefully, and top-dress all the plants with a mixture of loam, leaf-mould, and manure, all thoroughly sweetened and sound.

Diseases and Insect Pests.

—One of the most virulent diseases which attacks the Carnation is canker, which is almost an irremediable and hereditary evil. As soon as it appears, all the shoots capable of such treatment should be taken off and piped, and the old stock burnt. Be careful not to pipe any shoot which shows the slightest symptoms of the disease. The great insect enemy of the Carnation is the wireworm, which eats into the stem and destroys the plant. It is a good plan among others to edge beds of Carnations with double garden Daisy, the wireworms being so fond of this plant, that they will leave the Carnations comparatively free. It is also a good plan to dig in a considerable quantity of lime in a border round the beds. When grown in pots, a little lime sprinkled on a layer of moss immediately over the crocks will keep off most sinuous evils. A little lime may also be laid round the saucers of water into which the pots which support the stages are inverted. Earwigs are dreadful pests when the bloom is on the plants; they get into the pods as soon as the flower is developed, and eat away the petals and seed vessels unless very carefully sought for and destroyed at once. It is a good plan to place a short stick in the pot reaching about half way up amongst the grass, on which a small pot full of moss is inverted in the manner usually adopted for Dahlias, but if you are saving seed carefully, it is best to examine the pods daily. Another small pot may be inverted on the top of the stick to which the blooms are tied to trap these insects. Under glass green fly is sometimes very troublesome, but may be easily got rid of with fumigation or by dusting with Pooley's Tobacco Powder. This last should be tied up in a little muslin bag and shaken over the affected plants. In populated districts sparrows are very fond of pecking the buds as soon as they are formed. After this visitation the buds appear to be bruised and pinched, and the only way to obviate it is to stretch white and red threads over the plants, or

to tie little tongues of red cloth to the top of the supporting sticks by little threads about 5 in. long, so that they flap in the wind. When the grass is young and tender you will probably be a good deal troubled by leather-coated grub which climbs up the stems at night and eats off the tender tips of the grass and the heart of the shoots. It is especially tiresome with seedlings. It is generally to



Lastrea Richardsi multifida.

be found by scratching under the surface with a pointed stick, where it lies curled up during the day. It is as well to water occasionally with lime water to expel worms from the pots. Sometimes small black-headed grubs will appear if the soil is not thoroughly sweet. There is no antidote for them except careful picking out by hand. Damp must be carefully avoided; it often causes Carnations to rot in the stem at the level of the ground. To obviate this, place a little

silver sand round the stem as a surface to the ground. Never let the stems get twisted; this is nearly always fatal to the plant, and must be prevented by tying up the stems well directly they get long enough. When, however, a stem has become twisted, never attempt to straighten it, as it will only increase the damage. The plants are also subject to two kinds of mildew, the white and the black. When the grass appears floury and white let it be dusted at once with sulphur; this is white mildew. The sulphur should remain on two days, and then be washed off. In the case of black mildew, or "spot," which is the most dangerous, let the plants affected be removed at once and burnt, or if the disease is deeply rooted burn the whole plant before the disease spreads, after taking pipings, if there are any absolutely free from any symptoms. It makes its appearance in the form of little black specks or blotches on the grass.

Carnations and Picotees in Beds.—If you grow your Carnations and Picotees in beds (and many of the northern growers bloom their show plants in beds in preference to pots), let them be prepared in very early spring, as early, in fact, as possible after the frosts, in the following manner: Prepare a compost of loam three parts, cow manure two parts, coarse sand two parts, lime and charcoal one part. Let this be laid on the surface of the beds to a depth of about 4 in. or 6 in. and dug in as deep and well as possible. Let it be forked over periodically until the plants are ready. About March or April, or in September, plant out your layers or pipings, &c., about 10 in. apart. Keep them watered, and as the flower-stems rise tie them up to sticks. At the right time layer them in the bed in the same manner as described in a previous issue for those in the pots; do this as early as you can, but not too early, so as to give the layers a good opportunity to get established. Examine them now and then to see whether they have rooted, and when they have done so take up each layer with a ball of earth and put all those of one sort into one large pot roughly, and all those of another into a second, and so on, labelling each pot. Then take up the old plants and either throw them away or put them into some spare corner in a mass, and leave them alone from year to year to do what they like for decorative purposes; they are seldom worth keeping. Renovate the bed by digging in deeply some manure and loam, and place back in the bed at intervals of 10 in. the layers you have taken from the old plants. In the winter throw some littery straw over them, take it off in spring, and you are in the same state as you were last year; so on from year to year, treating them as nearly as you conveniently can like the pot varieties. Of course the choicest show kinds must not be grown out-of-doors in this rough and hardy manner. If the beds are at all troubled with wireworm, place little slices of Potato, Carrot, or Apple just beneath the surface of the soil at short intervals, take them up as often as you can, and slay the wireworms you find in them. In June top-dress the bed with loam and manure, and, excepting that it will require more stimulating food, treat your bed as nearly as you can as an immense pot. GIROFLE.

LASTREA RICHARDSI MULTIFIDA.

THIS beautiful tasselled Fern, suitable for a warm conservatory or intermediate house, was sent to Messrs. Veitch, by Mr. Chas. Moore, of the Botanic Garden, Sydney. It differs from the New Caledonian plant *Lastrea Richardsi* in having the apex of the fronds and the apices of the pinnæ multifidly cut into numerous narrow-pointed spreading lobes. The fronds are 3 ft. high, including the stipes, which are 1 ft. long. The pinnæ are upwards of 4 in. long in the broadest part, and terminate in densely fingered tufts of about fifty long narrow divisions. The bright green colour, small pinnules, and bold crested apices with their numerous narrow divisions, give this Fern a singularly elegant appearance. It received a first-class certificate from the Royal Horticultural Society last year, and a certificate of merit from the Royal Botanic Society.

Fancy Pansies.—The demand for fine sorts of fancy Pansies is quite astonishing. No fewer than 1400 dozens were sent to Manchester from the village of Sale alone last week, and as the wholesale price is 2s. per dozen, the large sum of £140 was realised for them in one week. The demand for them, indeed, has been continuous for several weeks, and as a great many other places send their quota also, the aggregate must be immense. Almost every market gardener has his row of Pansy frames. The sorts grown are the very finest; nothing common will sell. Two nurserymen at Sale, Messrs. Brownhill & Son and Sam Robinson, have for the last two years beaten both Scotch and English growers, carrying off the first prizes in this class. This year they are again in the arena, and I believe will compete almost entirely with their own new seedlings raised from such fine sorts as *Thalia*, Sir P. R. Murray, and Lady Falmouth, and the

best German sorts. Violas also are in general favour, and have been very extensively cultivated. Several new Violas will also be shown at Manchester in Whitsun week of very great merit. Show Pansies are quite neglected, the flowers being so much smaller and tamer than the large and brilliant fancy sorts.—BROCKHURST, *Didsbury*.

NOTES OF THE WEEK.

The Last of the Narcissi.—The trial grounds of Messrs. Barr & Sugden, at Tooting, are now dull indeed compared with what they were a short time ago, when there were acres all aglow with the varied hues of Daffodils; now there are but a few stragglers; the latest kinds to flower are the double poeticus, now grown so largely for market; *N. poeticus recurvifolius*, a handsome large-flowered variety with glaucous foliage; *N. gracilis*, with delicate yellow blossoms, a very pretty kind, and one of the Hoop-petticoat section, *Corbularia conspicua*, the hoop-like cups of which are very showy. Of course further north there are several other kinds in flower still, but Mr. Barr's collection may be taken as a fair illustration of the condition of Daffodil grounds in the neighbourhood of London.

New Geum (*G. miniatum*).—This name has been given to a remarkably fine hardy flower lately originated in Mr. Parker's nursery at Tooting. It is as it were intermediate between *G. aureum*, an early flowering species with clear yellow blossoms, and the brilliant red-flowered *G. coccineum*, which blooms later in the season. The flowers of *miniatum* are quite as large as those of *G. coccineum*, but they are of a rich deep orange red, a colour which when seen in a mass is very attractive. The foliage is intermediate between that of *G. aureum* and *G. coccineum*, and the flowers are produced much earlier than those of the latter. It is now in perfection, and, judging from the strong flowering growths it is sending up, it will continue to flower throughout the summer, a circumstance which will render it doubly valuable as a border flower.

The True Alpine Forget-me-not (*Myosotis rupicola*).—People may suppose that this is an extremely difficult plant to cultivate. It is not any wonder that they may do so, because one generally sees a plant or two of it in a weak state here or there. We were charmed to see whole colonies of it in Mr. Whitehead's rock garden the other day full of flower, quite dwarf and healthy as any common Forget-me-not. They had been raised from seed and grown in exposed level spaces on the rock garden, and in groups or colonies. They were very brilliant in colour. Not the least satisfactory thing was to see no sign of hybridism or crossing, this brave little mountaineer here keeping true and distinct. We hope it may always be so. Moreover, it seems a true perennial, and does not go off in the miffy way that some of the other Forget-me-nots do.

White Alpine Clematis (*C. alpina alba*).—This rare twining shrub is now one of the most noteworthy plants in flower in the Exotic Nursery, Tooting. It is an exact counterpart of the purple-flowered typical form often called *Atragene austriaca*, but the blossoms in this case are pure white, and as they droop gracefully from the slender twining branches, they have an extremely pretty effect. Like the ordinary form, it is an excellent plant for trailing over tree stumps or similar objects, a mode of growth which suits it better than in the open, trained simply to an ordinary stake.

Varieties of the Quamash (*Camassia esculenta*).—Of this extremely fine bulbous plant there are several varieties in Messrs. Barr & Sugden's trial grounds at Tooting. They differ most remarkably in the time of flowering, some being very early, others intermediate, while one or two are very late. They are not quite in condition yet, but one of the finest of the early forms is *Browni*, a sort not only remarkable for its earliness, but for its noble aspect compared with the type. The flowers, too, are larger and of a richer purple.

Varieties of Alpine Thrift (*Armeria alpina*).—Among the more interesting hardy flowers in Mr. Parker's nursery at Tooting are the several varieties of Alpine Thrift. It is planted in lines edging the walks, where it forms broad masses completely covered with small dense heads of blossoms, which, by their numbers, have a very fine effect. One of the prettiest and brightest is called *A. alpina coccinea*, a variety possessing a beautiful soft carmine tint; then there is a pure white variety named *alba*, and a deep lilac-tinted sort called *lilacina*, a trio of alpine plants that merit a place in every border.

Crassula jasminea.—Under this name Mr. Brown, of Hendon, exhibited the other day at South Kensington a dozen or so of remarkably fine plants. They were in 4½-in. pots, and were some 9 in. high, and each had a broad flat head of pure white Bouvardia-like flowers, possessing honey-like perfume similar to that of its

congerer, *C. coccinea*. It is remarkable that such an attractive plant as this should be so seldom grown, for not only is it a beautiful pot plant, but the flowers are especially suitable for cutting, as they last a long time in perfection in that state.

The Spanish Furze.—This name is commonly applied to *Genista hispanica*, a South European species having the branches thickly beset with sharp spines similar to the common Furze. We were never so much struck with its attractiveness as a few days ago, when we saw it in Mr. Parker's nursery at Tooting, where it seems to be a favourite shrub, judging by the numbers of it grown—dense bushes, literally masses of gold, now conspicuous from all parts of the nursery. It is apparently a much neglected shrub, though we know not one more showy or one that will thrive in any soil and remain in beauty such a length of time.

The White Agapanthus.—When this gets better known than it is, it will certainly be grown as extensively as the blue kind, for, notwithstanding the endless amount of plants in blossom during the summer, choice white flowers are not readily obtainable. Therefore, the spotted blooms of this *Agapanthus* are sure to be largely used for bouquets, a purpose for which they are better adapted than those of *Hyacinthus candicans*, being lighter in appearance and purer in colour. There has also been distributed within the last few years a double variety of *A. umbellatus*; but although I have grown it two or three seasons, its blossoms absolutely refuse to open properly, and from several others I have heard the same complaint.—H. P.

Rubus deliciosus.—This lovely Bramble is now covered with its large snow-white blossoms in the Exotic Nursery, Tooting, where it is perfectly hardy as a standard in the open border, and never fails to produce a fine crop of flowers annually. If there is any shrub that deserves to be more fully known than another it is this beautiful Californian *Rubus*, which only lately has been brought into prominent notice, though it has been introduced some years. A good illustration of it was given in THE GARDEN (Vol. XVIII., p. 156).

Phlox subulata.—At present, no plant is more showy than this lovely dwarf pink *Phlox* when seen in sufficiently large masses. It does best in rather dry positions, such as an elevated bank or rockwork, when it quickly spreads and becomes so thickly set with flowers that they have scarcely room to expand. It is readily increased by division, and should be planted where it can remain undisturbed for years. We carpet beds of bulbs permanently planted with it as they come through it, and keep all the cleaner for having an undergrowth of foliage, and, by having a mixture of early and late bulbs we get a long succession of flower.—J. G. L.

Public Parks.—An effort is being made to obtain a public park for Paddington and North-west London. The land proposed for it belongs partly to Mr. Thistlethwayte and partly to the Ecclesiastical Commissioners. The former promises to subscribe £15,000, subject to certain stipulations. The estimated cost is set down at £200,000, a sum proposed to be cleared off by an annual payment of £5000 for forty years. The area of the park is to be ninety acres.

Ribes sub-vestitum and lacustre.—These are just now in flower at Kew. The former, a strong growing kind, has shoots from 4 ft. to 5 ft. in length, densely covered with reddish coloured spines. The sepals of flowers, which are Fuchsia-like and droop like those of *R. speciosum*, are brownish-crimson in colour, while the petals are whitish, shaded with pink at the base. Altogether, it forms a bold and distinct looking shrub. The other kind (*R. lacustre*) has a weak, somewhat procumbent, habit, and is also spiny; its flowers, which at a little distance off appear to be insignificant, are, when looked into, really very interesting. They are borne as in the common Red Currant, and are of a greenish colour shaded with red and peculiarly cup-shaped. This *Ribes* is by no means a showy plant, but from the quantity and peculiar shape of the flowers it attracts attention. The late flowered variety of the Golden Currant (*Ribes aureum serotinum*) is still very showy.—H. P.

Chamærops Fortunei.—The two fine specimens of this Palm in the pleasure grounds at Heckfield have again survived the winter, and, though not afforded any protection, they are in no way injured; on the contrary, they are in most vigorous growth and are now throwing up several new leaves and eight flower-spikes each. After this, no one in the south or west of England need scruple to plant out this noble Palm.—H.

New Asparagus.—Mr. Simpson, of Colchester, sends us what he considers a new variety of *Asparagus*, a very pale, delicate, green sort and good in size. What its value may be can only be determined on a large scale and by actual comparison with other kinds. It has been too much the fashion to declare that all varieties are one and the same; there is a good deal more in them than is generally known, but no useful experiments in the matter have as yet been made with us. We hope to hear more of Mr. Simpson's variety.

A Double Greenhouse Daisy.—The taste for Daisy-like single flowers does not prevent due praise being given to a double form apparently of one of the annual races, sent us from Mr. Ware's nursery, named *Chrysanthemum pubescens*. It is at present grown in the greenhouse, and its neatly imbricated cream-white blooms with sulphur centres are pretty.

Paulownia imperialis.—A large spreading example of this tree is now in fine condition on our lawn. The leaves are preceded by spikes of pale blue flowers, not unlike those of a Foxglove. It is generally considered tender, and as the flower-buds were very prominent before the winter set in, I felt sure that 27° of frost would have injured them, if not the tree; but I am agreeably surprised to find that every bud is expanding. The tree is some 40 yards in circumference and covered with flowers, forming a striking contrast to the snowy May trees, the purple Judas trees, Lilacs, and golden Laburnums. It is, in fact, a colour unique amongst trees and shrubs.—J. GROOM, *Linton*.

Adiantum Lawsoni.—This is a very distinct Maiden-hair Fern in the way of *A. cuneatum*, easily recognised by its singular wedge-shaped pinnae, which give the plant an extremely elegant appearance. In habit as well as size it is similar to *A. cuneatum*, and probably when it becomes less rare it will be as popular as that kind. We lately saw some thriving plants of it in Mr. Parker's nursery, Tooting.

White Wood Hyacinths (*Scilla nutans alba*).—We are all familiar with the wood Hyacinth under the name of Bluebell, which in damp woodlands forms large sheets of blue at this time of the year, but we do not often see a good clump of the white variety of this popular native flower. I lately saw a fine group of it in a neighbouring garden, and it is certainly worthy of a place wherever really hardy flowers are appreciated; its long arching spikes of drooping white bells were particularly pretty in quantity, and in the shape of cut flowers they are exceptionally useful.—J. G. L.

Mexican Orange Flower (*Choisya ternata*).—We notice that a shrub of this against one of the open walls at Kew is flowering tolerably well after having been much injured during the past winter. Some of the branches have been protected by a slight projection of the wall, and here the flower is most profuse; such slight injury from such exceptional cold should not deter anyone from growing such a beautiful shrub, the snow-white and delicately-scented blossoms of which are scarcely inferior to those of the Orange.

Primula cortusoides amœna.—This lovely Primrose is now in full beauty, and ought to be grown in quantity by everybody. We have some well established edgings and masses of it; its beautifully serrated foliage is of the freshest green imaginable, and its spikes of flowers bright and effective. It is planted in rather stiff soil in partial shade, and as it is quite deciduous, great care is needed to see that it is not disturbed when dormant. It increases rapidly, and although mostly seen as a pot plant, I would strongly recommend any one having it to try a few planted out; they will be more than satisfied with the results.—J. G., *Linton*.

The Common Hyacinth or Blue-bell is distributed more or less throughout Kew Gardens, and in some parts of the Queen's Cottage grounds in such profusion as to form one sheet of blue, which, under different amounts of light admitted through the overhanging trees, is apparently of a great many shades, varying from a light cœrulean blue to a depth almost approaching purple; this effect is of course heightened when the sun shines, some parts being in full sunlight, others densely shaded.—H. P.

Cerasus pumila.—This pretty little shrub is just now in full flower, and although not so showy as several of its more robust congeners, yet from the quantity produced of its pure white blossoms it is very effective. As it only grows from 3 ft. to 4 ft. high, it is eminently adapted for situations in which small-growing shrubs are desirable.—ALPHA.

The Alexander Peach.—Mr. F. Rivers sends us a fruit of this fine early Peach. It is ten days earlier than Early Beatrix and twice as large. It is a good strong grower, and the flavour, according to our taste, is excellent.

Chamærops Griffithi.—We are requested by the Comte d'Épémèsuil to inform our readers that a strong specimen of this Palm is about to flower in the winter garden of Acclimatation at Paris. As this is a female plant, and it would be well to increase a Palm so rarely met with in cultivation, the Comte d'Épémèsuil is anxious to obtain pollen of it for the purpose of fertilisation, or of *C. Martiana*. Arrangements could afterwards be made about the produce. All communications on the subject can be addressed to M. Geoffroy St. Hilaire, director of the Jardin d'Acclimatation, Paris.

Cedronella cordata.—Mr. Riches sends us this neat little Labiate alpine plant with a leaf somewhat like the ground Ivy, and a lilac slightly dotted flower somewhat like that of a *Salvia*. It is very dwarf and pretty, and will probably prove a favourite rock plant.

Toxicophylea Thunbergi.—When grown well as a greenhouse plant in pots, this plant is a fine object, and particularly desirable on account of the delicious perfume of its white blossoms that are produced numerous in dense clusters from the axils of the thick leathery leaves which stand out straight at right angles to the stem. A large plant of it is now finely in flower at The Cedars, Tooting.

Implement Exhibition.—We learn that this department of the great show to be held at South Kensington on June 3, 4, 6, and 7 promises to assume large proportions this year, the entries being much more numerous than usual and the exhibits of a character likely to attract attention. There are fourteen classes, and gold medals and certificates of merit will be awarded as prizes in each.

Waterer's Rhododendron Exhibition.—We learn that permission has again been given to Messrs. John Waterer and Sons, of Bagshot, to hold their forthcoming display of Rhododendrons in the gardens of Cadogan Place, and we understand the exhibition will be on view throughout the month of June.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MAY 24.

THIS was a very attractive exhibition, there being an unusually fine display in the conservatory as well as numerous new and interesting plants exhibited in the Council room. First-class certificates were awarded to

Messrs. Veitch & Sons, Chelsea, for—

Gloxinia Brantome, a kind with flowers of a rich purple copiously freckled in the tube with a duller hue and having a well defined white margin faintly dotted with pale mauve. **G. Fabiola**, with ground colour of a deep carmine, spotted in the tube with a similar tint, and a broad white margin. **G. Lady Marriott**, an exquisite variety having the whole flower spotted and dashed with carmine and lake on a white ground, except the broad marginal band encircling each lobe. All three of these varieties are of the erect flowered type.

Astilbe Thunbergi.—A handsome Japanese plant, resembling a *Spiraea*. The leaves are pinnate, and spread widely, and the flower-spikes, which rise about 2 ft. high, are pure white, and have a feathery appearance.

Mr. Rapley, Balham, for—

Calceolaria Cloth of Gold, one of the largest flowered varieties yet raised, the pouches having a diameter of nearly 3 in. and fully inflated. The colour is a clear yellow, and the plant is very floriferous, one truss having sixteen fully expanded flowers upon it.

Messrs. C. Lee & Son, Royal Vineyard Nursery, Hammersmith, for—

Rubus deliciosus, a lovely white-flowered Bramble with blossoms 2 in. across, produced on long elegant sprays. It is perfectly hardy and forms a handsome dense bush. It was beautifully figured in *THE GARDEN* (Vol. XXIII., p. 156).

Mr. W. Balchin, Hassocks Gate Nursery, Keymer, for—

Reseda odorata prolifera alba, a white-flowered variety of Mignonette, having the singular tendency to produce secondary spikelets from each flower. It is a very distinct kind and highly attractive, and its perfume is in no way inferior to that of ordinary Mignonette.

Mr. C. Noble, Bagshot, for—

Clematis Lady Constance Kennedy, a beautiful free flowering variety with pure white blossoms; **W. E. Gladstone** with large blossoms $3\frac{1}{2}$ in. across of a rich purple tint, and **George Eliot**, a superb variety with an abundance of flowers of a deep rich purple.

Mr. Bockett, Stamford Hill, for—

Trichopilia suavis alba.—A white-flowered variety, with only a dash of yellow in the interior of the shell-like lip to mar its chaste purity. The plant shown was a fine example of skilful culture.

Of other new and interesting plants, Messrs. Veitch sent *Serissa foetida* fl.-pl., a dwarf shrub of neat growth with small white rosette-

like flowers; two varieties of *Acer polymorphum*, one named *linearilobum atro-purpureum*, the other *septemlobum laciniatum*, both elegant varieties; *Croton Brageanum*, a long-leaved variety, prettily mottled with green, yellow, and crimson; *C. recurvifolium*, a brown-leaved form of handsome appearance; *Pothos celatocaulis*, *Begonia Magnum Bonum*, B. Prince of Orange, *Gloxinias* Christophe Colomb, Coronet, Chardin, and Purity, *Caladium La Perle du Bresil* and *Minerva*. *Yucca elegans*, a very handsome kind with gracefully recurved leaves about 2 ft. long and 1 in. in width, was shown by Messrs. C. Lee and Son, and will no doubt prove a valuable decorative plant on account of its not being very susceptible to injury by rough treatment. A cultural commendation was accorded to Mr. Brown, Hendon, for *Pelargoniums* Stentor, Harry Buck, Robert Green, and Enchanter, all with brilliantly coloured blossoms and valuable market varieties. Messrs. Carter and Co. showed plants of their fine strain of *Mimulus* called the Queen Prize strain, the flowers of which are large, beautifully marked, and in various colours. Mr. Hugh Hawley, Ranelagh Gardens, Leamington, sent Zonal *Pelargoniums*, Sir Charles, Lady Betty, the latter a variegated sort with pink flowers.

From Messrs. Cannell & Sons, The Nurseries, Swanley, came a fine double brilliant scarlet *Tropæolum* named *Hermine* Grashoff, plants and cut flowers of the chastely beautiful double flowered form of *Campanula persicifolia*, and a *Tropæolum* said to be an improved *T. canariense*, but very different from that species. Mr. Crowe, Boleyn Nursery, Upton, sent two tree Carnations, one, General Roberts, a deep crimson sort, being particularly fine; the other was named Sir Evelyn Wood. The General Horticultural Company exhibited *Philodendron Wallisi*, a handsome new Aroid, *Rivina humilis variegata*, *Pteris tremula crispa*, a variety with crisped pinnae, *P. serrulata cristata compacta*, and *Rhodea japonica aurea variegata*. Mr. J. Fry, Haydon Hall, Eastcote, Pinner, exhibited a fine collection of Veitch's strain of *Gloxinias*, all of the erect flowered type, and several of the comparatively new varieties, the flowers of which are copiously freckled. All the flowers as well as the foliage were characterised by high and varied colouring and robust growth. A superb collection of twelve varieties of Tulips came from Mr. P. Wallace, Winkfield, near Windsor; of these the colours were very fine, and all were beautifully streaked and feathered and perfectly cup-shaped. A flowering plant of the rarely seen *Lælia majalis* was shown by Sir Chas. Strickland, Bart., Hildenley, Malton. It was growing on a suspended block of cork, and bore two large blossoms of a beautiful pinky puce, and a lip of of the same tint streaked and dotted with deep carmine.

Fruit.—A new Melon named Bethell's Conqueror was shown by Mr. Bethell, Sudbourn Hall, Wickham Market, but the committee considered it not equal to others in cultivation. It was a large orange-fleshed kind of oval shape. The same exhibitor also showed Tomato Sudbourn Hall Perfection, a kind considered very like Hathaway's Excelsior. Tomato Trentham Early Fillbasket was shown by Mr. Stevens, Trentham Hall; the committee found it deficient in flavour, but considered it likely to be a very useful market variety on account of its earliness and free-bearing qualities. It is of medium size and one of the round-shaped type. Mr. Clayton, Grimston Park, showed a Tomato selected from Keye's Early Prolific. It is a large handsome fruit of high colour, and was awarded a cultural commendation. Mr. A. Henderson, Thoresby, exhibited a fine dish of a Fig called Adam, the fruits of which were of large size, indicating skilful culture. The committee awarded it a cultural commendation. It is a variety highly spoken of for its prolific cropping qualities, though the flavour is scarcely equal to that of some other sorts. A large dish of Strawberry James Veitch came from Mr. Miller, Clumber, Worksop, but the fruits, though large, were past their best. A handsome brace of Cucumbers named Wells' Improved was shown by Mr. Wells, Earlswood Nurseries, Redhill, and a singular twin fruit of Rollisson's Telegraph came from Mr. W. F. Dick, Thames Ditton House, Surrey.

In the Conservatory were some excellent groups effectively arranged. Of these the most noteworthy was a choice collection of *Clematis* from Mr. C. Noble, Bagshot, remarkable for great variety of colour. There were several of the Florida type, or those with double rosette-like blossoms, the most conspicuous of which were Aurora, a kind with perfectly symmetrical rosettes of a pinkish-pace tint; Proteus, an unusually large flower, somewhat resembling a *Pæony* in form, and, though rather coarse compared with the others, very effective; Sarah Bernhardt, a superb variety with pale lilac rosettes, and one of the finest of the class exhibited. Of the lanuginosa type were W. E. Gladstone, mentioned above; Alonzo, a fine rich purple flower; Imogene, pure white; and Pirate King, one of the most distinct in colour, being of a rich violet-purple. The Patens type was more numerous represented. The best were George Eliot and Lady Constance Kennedy, alluded to above; Lord Giffard, mauve-pink; Lady Wallie Campbell, puce-white;

Countess Gleichen, pale lavender; Lady Cholmonley, very free and of a rich purple; May Queen, one of the finest of the light-coloured varieties, being of a delicate blush; Margaret Dunbar, rich purple, very fine and free; and Undine, of a colour similar to the last. This group was deservedly awarded a silver flora medal. For a small, but choice group, consisting chiefly of Ferns, Mr. Guyett, Lyton House, Clapham Common, was awarded a silver Banksian medal. It comprised fine examples of *Adiantum farleyense*, *Gymnogramma sulphurea*, *G. peruviana argyrophylla*, *Davallia Mooreana*, and *Nephrolepis exaltata*, all indicating skilful culture. Mr. Aldous, South Kensington, received a bronze Banksian medal for an attractive group in which *Lilium longiflorum* and the variegated *Negundo* were introduced with good effect, together with Palms, Ferns, and other fine foliated and flowering plants. A group from Messrs. Osborn, Fulham, was remarkable for the many choice hardy plants which it contained, and among them were conspicuous *Erigeron pulchellum*, with orange flowers; *Saxifraga Wallacei*, the best of the section; *Camassia esculenta tardiflora*, *Corydalis nobilis*, *Polemonium reptans*, *Phloxes*, the scarce *Androsace sarmentosa*, all among the most desirable of hardy flowers; several plants of the handsome new variegated Madeiran Ivy (*Hedera madeirensis variegata*) was deservedly much admired for its effective variegation. The General Horticultural Company had an extensive group arranged in the usual effective manner. It consisted of fine foliated and flowering plants; among the latter were some fine varieties of *Gloxinias*, for which the Anerley Nursery is now famous. The *Dracænas*, especially *D. Rossi*, *D. Salmonea*, *D. Superba*, and *D. Gladstonei*, were very conspicuous, and formed the principal feature. *Calceolarias* were in strong force, and two very fine collections were shown, one by Mr. Rapley, Bedford Hill Park, Balham, the other by Mr. Bird, Lodge more, West Dulwich. Mr. Rapley's collection was remarkable for the large size of the flowers and floriferousness of the plants, but in the other collection there was a greater diversity of colour. Both, however, were remarkably fine, and show well what can be done by specialists. To each of the exhibitors a silver flora medal was awarded. A large collection of *Narcissi* came from Messrs. Barr and Sugden, consisting principally of the double *Poet's Narcissus*, *N. gracilis*, *N. biflorus*, and *N. Corbularia*, all among the latest to flower. From the Society's Garden at Chiswick, Mr. Barron sent an unusually large group, among which was a numerous collection of species of *Pelargoniums* and *Geraniums*. The pretty *Schizanthus retusus* was highly attractive among the *Azaleas* and other flowering and fine foliated plants.

ROYAL BOTANIC SOCIETY.

MAY 25.

THIS, the first summer exhibition of the society this year, was an extensive one, and as regards the quality of the exhibits in no way inferior to those of late years; indeed, in many respects it surpassed them. The arrangement was as usual carried out very effectively, and all the groups were made to harmonise or contrast with others near them.

Botanical Certificates were awarded to the following:—

Messrs. Veitch & Sons, Chelsea, for—

Heliconia aureo-striata.—A handsome foliated plant with a Canna-like aspect, having broad, bright green leaves, with midribs and veins of a light gold-yellow.

Croton Princess of Wales.—A very handsome plant, having long and gracefully drooping leaves, prettily mottled with olive-green and two or three shades of yellow. The leaves are, moreover, singularly twisted, a character which adds to its attractiveness.

Aralia Chabrieri.—An elegant plant of dwarf, compact growth, remarkable for the narrow leaves, which are deep green and ribbed with crimson.

Schismatoglottis crispata.—A new and handsome Aroid from Borneo, having broad foliage elegantly variegated with silvery-grey on a pea-green ground. It has a dwarf, compact habit of growth, and is altogether very distinct in appearance.

Astilbe Thunbergi.—The same as was certificated on Tuesday at South Kensington, and alluded to above.

Pleopeltis albida squamata.—A dwarf growing Fern with trifid fronds of a dark green hue covered on the upper surface with numerous white scales, which give it an interesting appearance.

Mr. Bull, Chelsea, for—

Dieffenbachia insignis.—A handsome kind, with broad ovate leaves of a rich deep green, irregularly blotched and spotted on the upper surface with greenish white.

Aralia Chabrieri.—The same as alluded to above.

Microstylis metallica.—A terrestrial Orchid, remarkable for the shining leaves of a blackish purple on the upper, and a light reddish purple on the under surface,

Odontoglossum polyxanthum.—One of the section of the genus in which a brownish colour predominates in the flower. The markings of the flower consists of a bright chocolate brown and greenish white.

Mr. B. S. Williams, Victoria Nursery, Upper Holloway, for—

Asplenium apicidens.—A singular yet handsome evergreen Fern from the South Sea Islands, having the shining dark green pinnate fronds finely cut at the tips of each pinnæ, which renders it distinct.

Heliconia nigra punctata.—A Canna-like plant with broad foliage of a deep vinous hue similar to that of *Canna limbata*.

Croton Austinianum.—One of the short-leaved series with compact erect growth. The leaves are yellow with a broad marginal band of deep green, and here and there a suffusion of reddish crimson.

Kentia costata.—An elegant Palm, having pinnate and elegantly arching leaves, with prominent ribs running along the surfaces.

Asplenium contiguum fissum.—A distinct evergreen Fern, with deep green fronds of leathery texture, and regularly and sharply toothed at the margins of the pinnæ.

Anguloa Turneri.—A handsome species in the way of *A. virginialis*, having pointed sepals of a whitish hue copiously freckled and streaked with delicate pink.

Odontoglossum Alexandræ grandiflorum.—A remarkably fine variety, both as regards the size and markings of the flowers.

Lastrea membranifolia.—A handsome Fern with wide-spreading and fine cut fronds of a peculiar pale green hue, and with copious sori, which show on the upper surfaces, rendering the plant highly interesting.

Odontoglossum polyxanthum.—The same as alluded to above.

The General Horticultural Company for—

Dracæna Leopoldi.—A variety of bold aspect, having broad recurved leaves of a bronzy green suffused with bright rosy crimson. ***D. Salmonea***, a slender growing form with narrow erect leaves of a salmon pink suffused with green. ***D. Majestica***, with rather broad foliage of a rich flame red hue interspersed with streaks of bright green. A very handsome and distinct variety.

Pteris tremula crispata.—An elegant variety of a favourite Fern, having the fronds crisped in the margins, which gives them a handsome appearance.

Nepenthes superba.—A variety remarkable for the brightly marked pitchers of medium size, plentifully produced on the small plants.

Mr. Croucher, gardener to Mr. Peacock, Sudbury House, Hammer-smith, for—

Cattleya Mendelli superba.—An extremely beautiful variety having large blossoms with delicate pink sepals, and a large lip exquisitely crisped at the margin and coloured interiorly with bright orange and amethyst.

Floricultural Certificates were awarded to—

Mr. J. Davies, Brook Lane Nursery, Ormskirk, for—

Rhododendron Daviesi.—A variety of the Lobbi type, having dense trusses of bright orange red flowers produced on dwarf compact plants with deep green foliage.

Mr. C. Turner, Slough Nurseries, for—

Carnations (Tree) Mrs. G. Hawtrey, a variety with large fine formed flowers of a beautiful clear sulphur yellow, and ***Mrs. Maclaren***, with large broad-petalled blossoms flaked with various shades of red on a white ground.

Messrs. Veitch, for—

Begonia Davisii fl.-pl. superba.—The finest double tuberous variety yet raised; the flowers form a perfect rosette, between 2 in. and 3 in. across, and of a rich, deep crimson colour. ***B. Mrs. Sheppard***.—A tuberous variety of fine compact habit, and large single flowers of a delicate blush tint. It is apparently free in flower and robust in growth.

Gloxinia Christophe Colomb.—An erect-flowered variety, of a rich violet-purple, profusely spotted on the inside of the tube with white, and with the lobes of the corolla finely laced with white. ***G. Brantome***.—The same variety as alluded to above.

Mr. Wiggins, Hillingdon Place, Uxbridge, for—

Azalea Phœbus.—An extremely fine variety, having large semi-double flowers of a rich orange-red hue, suffused with violet. The plant is very floriferous and of compact growth.

Pelargonium Vivandiere.—One of the decorative class remarkable for the bright colour of the large blossoms, which is a soft rose heavily blotched with vermilion. It is very free in flower and of robust growth,

Mr. Balchin, Hassock's Gate Nursery, Keymer, for—
Reseda odorata prolifera alba.—The white Mignonette described above.

Mr. C. Noble, Bagshot, for—
Clematis W. E. Gladstone and George Eliot, likewise alluded to in Tuesday's report.

General Horticultural Company, for—
Gloxinia Mrs. Abbey.—Remarkable for the large size of the erect blossoms and their pleasing colour, which is a rich carmine, dashed with white, and with a broad and well defined marginal band of pure white.

New Plants.—These were as usual very numerous, there being no fewer than sixty exhibited. From Mr. W. Bull, Chelsea—*Asparagus nitidus*, *A. æthiopicus*, *A. virgatus*, *Dieffenbachia insignis*, *Odontoglossum polyanthum*, *O. pardinum*, *O. Coradinei*, *Epidendrum Parkinsonianum*, *Nanodes Medusæ*, *Brassavola Digbyana*, *Aralia Chabrieri*, *Microstylis metallica*, *Kentia Luciana*, and *Heterospatha elata*.

From Messrs. Veitch—*Astilbe Thunbergi*, *Aralia Chabrieri*, *Croton Prince of Wales*, *C. Sinizianum*, *C. recurvifolia*, *Acer polymorphum septemlobum laciniatum*, *A. p. linearilobum atro-purpureum*, *Chionographis japonica*, *Hydrangea stellata fl.-pl.*, *Begonia Mrs. Sheppard*, *B. Davis fl.-pl. superba*, *Serissa foetida fl.-pl.* and variegata, *Pleopeltis albida squamata*, *Caladium Princess Beatrice*, *C. La Perle du Bresil*, *Heliconia aureo-striata*, *Schismatoglottis crispata*, *Alpinia albo-lineata*, *Azalea indica Helen Carmichael*, and *Gloxinias Achille*, *Purity*, *Christophe Colomb*, *The Czar*, *Lady Marriott*, *Fabiola*, and *Brantome*.

From Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, were *Kentia costata*, *Lastrea membranifolia*, *Croton Austinianum*, *C. Rodeckianum*, *Lælia Schroederi*, *Dieffenbachia Imperator*, *Heliconia nigra punctata*, *Oleobachia palustris*, *Actinopteris radiata australis*, *Asplenium contiguum fissum*, *A. apicidens*, *Aralia angustifolia*, *Paulinia thalictrifolia variegata*, *Chirata asparagoides*, *Anguloa Turneri*, *Odontoglossum polyanthum*, *Dendrobium rhodopterygium*, and *Crinum Makoyanum*.

From the General Horticultural Company—*Pteris serrulata cristata compacta*; *Dracæna voluta*, *Salmonea*, *Leopoldi*, *Anerleyensis*; *Rivina humilis variegata*; and *Gloxinia Printemps*, *Emily Telling*, and *Mrs. Abbey*.

From Mr. C. Noble, Bagshot—*Clematis Aurora Leigh*, *W. E. Gladstone*, *Proteus*, *May Queen*, *Sarah Bernhardt*, *Lady Constance Kennedy*, *Pirate King*, *Aurora*, and *George Eliot*.

From Mr. G. Smith, Edmonton—*Pelargoniums Heroine* and *May Queen*. Messrs. Osborn & Sons, Fulham—*Ribes alpinum pumilum aureum* and *Hedera madeirensis variegata*. Mr. Balchin—*Reseda odorata prolifera alba*. Mr. I. Davies, Ormskirk—*Rhododendron Daviesi*. Mr. Little, Hillingdon Place—*Pelargoniums (Decorative)* *Bridesmaid*, *Vivandière*, and *Jeannette*, and *Azalea Phœbus*. Mr. Hanley—*Pelargoniums (Zonal)* *Lady Betty* and *Sir Charles*. Mr. Charles Turner, Slough—*Tree Carnations* Mr. George Hawtreay and Mrs. MacLaren; *Tree Picotee Lady Stamford*; *Pelargoniums*. Mr. Henry Cox and Martial. Messrs. Carter & Co.—*Violas Purple King* and *Perry Hill Rival*. Mr. Croucher, Sudbury House, Hammersmith—*Cattleya Mendelli superba*.

Orchids.—These, though the collections were not numerous, were wonderfully fine, particularly those from Sir Trevor Lawrence's collection at Burford Lodge, Dorking, to whose grower—Mr. Spyers—the first prize was awarded. His collection included superb examples of *Cattleya Mossiæ*, 3 ft. through, with about fifty flowers; *Calanthe veratrifolia*, with twenty spikes; *Cattleya Mendelli*, with two dozen flowers on seven spikes; the rare *Aerides Houlettianum*, with six fine spikes; *Odontoglossum vexillarium*, between 2 ft. and 3 ft. across, and with ten spikes; *Cattleya Warneri*, with sixteen fine blooms; *Dendrobium Bensoniæ*, a perfect mass of flower; *Cypripedium niveum*, 3 ft. through and covered with flowers; *Masdevallia Veitchi*, with two dozen flowers; the rare and chastely beautiful *Cattleya Wagneri*, with five flowers; *Saccolabium retusum*, and *Aerides crassifolium*, one of the finest of the genus. The two other amateurs' collections were from Mr. Douglas, Loxford Hall, and Mr. Heims, Oakfield, Bickley, who took the second and third prizes respectively. The former had, among others, a grand plant of *Dendrobium nobile*, fine-flowered; *Cypripedium villosum*, 3 ft. through; *Odontoglossum Roezli album*, *Calanthe veratrifolia*, *Masdevallia Harryana*, *Cypripedium caudatum roseum*, *Dendrobium Wardianum*. Mr. Heim's best plants were *Sobralia macrantha*, with fourteen expanded flowers and seven buds; *Cattleya magnifica*; *Epidendrum prismatocarpum*, with five spikes; and *Cypripedium barbatum superbum*, with a score or so of blooms. There were three collections of Orchids from nurserymen. The best, from Mr. Williams, was very fine; it included *Lælia purpurata*, with two dozen flowers; *Dendrobium thyrsiflorum*, a dozen spikes; a fine mass on a block of *Oncidium concolor*; also of *Epidendrum vitellinum majus*, *Cattleya*

Mossiæ, *Cypripedium barbatum superbum*, *Saccolabium guttatum*, and a beautiful variety of *Odontoglossum vexillarium*. The next, from Mr. James, Norwood, included good specimens of *Dendrobium nobile*, *Odontoglossum citrosum*, *Dendrobium thyrsiflorum*, *Oncidium Marshallianum*, and *Masdevallia Veitchiana*. In the other collection from Messrs. Jackson were, amongst others, fine examples of *Calanthe masuca*, *Odontoglossum Halli*, and *Masdevallia Lindeni*.

Clematises.—These were more numerous and better shown on this occasion than they have been for some years; indeed, probably there never has been such a collection exhibited as that from Messrs. Jackman & Son, Woking, which occupied a prominent position on one of the slopes. This group comprised eighteen plants, all of large size and superbly flowered; some of the plants measured from 5 ft. to 6 ft. high, and as much in diameter. The most conspicuous kinds were *Duchess of Edinburgh*, *William Kennett*, *Gem*, *Madame Van Houtte*, *Countess Lovelace*, *Mrs. Moore*, *Princess of Wales*, and *Henryi*, the latter being particularly fine, though all the others named are amongst the finest varieties known. A silver medal was deservedly awarded to this group. A smaller collection came from Messrs. Richard Smith & Co., Worcester, which were likewise in fine condition, being extremely well-flowered, and the varieties shown were good. The best were *William Kennett*, *Lord Neville*, *Fairy Queen*, *Victoria*, *lanuginosa candida*, *hybrida perfecta*, and *Madame Van Houtte*. This group was awarded a silver medal also.

Stove and Greenhouse Plants formed, as usual, a numerous and excellent class. The best ten plants from amateurs were shown by Mr. Chapman, who had grand specimens of *Erica ventricosa magnifica*, *E. depressa major*, *E. Cavendishi*, *Acrophyllum venosum*, *Tremandra ericæfolia*, *Aphelexis macrantha rosea*, *Ixora Dixiana*, *Dracophyllum gracile*, *Ixora coccinea*, and *Anthurium Scherzerianum*, all in a perfect and fresh condition. Mr. Tudgey, who was next in the class, had huge examples of *Erica Cavendishi*, *Pimelea decussata*, *Anthurium Scherzerianum*, *Azalea magnifica*, *Sir H. Havelock*, and *E. Victoria*. This collection was very little inferior to the first in the general quality of the plants. There were two other collections in this class—one from Mr. Rann, the other from Mr. Peed.

There were two collections of twelve from nurserymen, that from Messrs. Jackson being the finest. It comprised grand specimens of *Imantophyllum miniatum*, *Hedera macrantha tulipifera* and *fuchsoides*, *Pimelea Hendersoni*, *Aphelexis macrantha purpurea* and *rosea*, *Erica ventricosa tincta rubra*, *E. Lindleyana*, and two huge *Azaleas*. The other, from Messrs. B. Peed, Norwood Nurseries, included fine examples of *Statice profusa*, *Azalea Perryana*, *Anthurium Scherzerianum*, and *Aphelexis macrantha purpurea*. The above two exhibitors represented likewise the class for six plants, the former again taking the first prize. The best plants in this class were *Epacris Eclipse*, *Erica Spenceriana*, *Dracophyllum gracile*, but some of the other plants shown were decidedly inferior.

In the class for six plants Mr. Chapman was again first with a fine collection, comprising *Ixora coccinea*, *I. Williamsi*, *Erica Cavendishi*, *Hedera macrantha tulipifera*, *Dracophyllum gracile*, and *Erica odora*. The second best, from Mr. Tudgey, included superb examples of *Erica ventricosa magnifica*, *Hedera macrantha tulipifera*, *Aphelexis macrantha rosea*, and a well-flowered *Erica Cavendishi*. The next, from Mr. Child, included a splendid *Azalea Cavendishi* and *Hedera macrantha tulipifera*; and in the other group, from Mr. Hinnell, was a remarkably finely-flowered plant of *Erica tricolor dumosa*, and another *E. Cavendishi*.

Fine-foliaged Plants.—These were remarkably fine, and Mr. Cole, Topsham, Exeter, showed the finest in the class. His plants included a huge plant of *Gleichenia rupestris glaucescens*, *Croton undulatum*, and *C. Disraeli*; also *Alcacia intermedia*, a grand plant; *Livistona altissima* and *Areca lutescens*. The next in this class was Mr. Rann, who showed a group also, comprising splendid specimens of *Croton Andreanum* and *Hendersoni*, *Pritchardia pacifica*, *Cycas circinalis*, *Thrinax elegans*, and *Dasyliion acrostichum*. Mr. Tudgey, who was third, showed, among others, fine plants of *Croton Andreanum*, *Kentia australis*, *Pritchardia pacifica*, and *Cocos Weddelliana*. Mr. B. S. Williams was first with six fine-foliaged plants in the nurserymen's class. He showed *Croton Williamsi*, *Geonoma Seemani*, *Croton majesticum*, *Kentia australis*, *Eucephalartos Lehmanni*, and *Dasyliion acrostichum*.

Azaleas were shown remarkably fine and very numerous, those from amateurs being the finest. Two collections were shown in the class for six which closely contested the first and second prizes. Mr. Ratty was placed first; he had grandly-flowered plants of *Criterion*, *Prince Albert*, *Miltoni*, *Exquisite Georgina*, and *Iveryana*. Mr. Child's plants, which were placed second, were scarcely inferior, though not so evenly flowered. The kinds were *Model*, *Elegant*, *Iveryana*, *Concinnum*, *Semi-duplex maculata*, and *Mad. Vervæne*. The other collection was inferior. For six plants in 12-in. post

Mr. Ratty also took the first place, as also for twelve plants in 12-in. pots in the open class, the latter being particularly fine, the varieties good, and all the plants well flowered. In the same class Mr. Turner showed a good collection of twelve plants, all very finely flowered, and similarly good groups were shown by Messrs. Jackson and Mr. Little's gardener. The class for six plants for nurserymen was represented by three collections, the best coming from the Kingston Nurseries, though those from Slough, which were placed second, were scarcely inferior to them. Both collections comprised fine plants with rounded heads, and represented some of the leading varieties, such as Duc de Nassau, Jean Van Geert, La Paix, Chelsoni, Roi de Holland, Criterion, Grand Crimson and Carnation. The other collections were below mediocrity. The brilliant colours of the Azaleas, of course, lent a gay aspect to the tent, but the greater part of the corridor was filled with them.

Roses.—One collection only of nine plants was shown. These came from Messrs. Paul & Son, Cheshunt, and were in every way remarkably fine. They comprised huge plants of Charles Lawson, Celine Forestier, Paul Verdier, Juno, Camille Bernardin, Marquise de Castellane, Victor Verdier, and Beauty of Waltham. A large group was also shown by these exhibitors in the non-competitive classes, and included some grand specimens, notably Celine Forestier and one or two Tea varieties. One of the four central divisions under the tent was occupied by a very fine collection of pot Roses from Messrs. Veitch's, Coombe Wood Nursery, all being finely flowered, especially having regard to the comparatively small size of the pots. These were interspersed with the elegant Japanese Maples, and the general effect of the whole was very fine.

Ferns.—Mr. Cole also showed the finest Ferns, and were all huge specimens, and in perfect condition, and was the finest collection that has been shown for some years. The kinds were Davallia Mooreana, some 8 ft. through, Gleichenia Mendellii, G. semi-vestita, Nephrolepis davallioides furcans, Pteris scaberula, and Davallia bullata. Mr. Douglas, for the second prize, had Dicksonia antarctica, Adiantum concinnum latum, A. cuneatum, Gleichenia Speluncæ, Davallia Mooreana, and Dicksonia fibrosa, all in fine condition. Among nurserymen Mr. Williams was first with six Ferns, having Gleichenia Mendellii and flabellata, Dicksonia antarctica, and D. squarrosa.

Pelargoniums were shown finely by Mr. Wiggins and Mr. Turner in the two classes for six plants, but the other collections were much below the average.

Miscellaneous groups were not so numerous as usual, but the few shown were extensive and comprised some excellent plants. Mr. B. S. Williams had a silver medal for a miscellaneous group of fine-foliaged flowering plants, as did also the General Horticulture Company, whose group for the most part consisted of Dracenas and similar subjects. Messrs. Cubbush had a group out of the ordinary style of arrangement, and the effect, on the whole, was good. Some finely-flowered plants of Erica Cavendishi were noteworthy in this group. The other exhibits were too numerous to report or allude to. A full list of awards is given in our advertising columns.

ALEXANDRA PALACE.

MAY 20 AND 21.

THE first of a series of competitive exhibitions to be held this season at the Alexandra Palace took place on Friday and Saturday last. The show was very creditable in all respects, though it is a matter of regret that such valuable prizes as those offered by the company on this occasion did not induce greater competition.

Roses.—Of these Messrs. Paul & Sons, Cheshunt, were the only exhibitors. The nine pot Roses which they showed in competition for the prize offered (£33) were a magnificent group, all the plants being of huge dimensions, and, with one or two exceptions, profusely flowered. Of Charles Lawson there was a grand example in fine condition, likewise of Mad. de St. Joseph, quite an exhibition in itself, being 8 ft. through; Victor Verdier, Anna Alexieff, Edouard Morren, Dr. Andry, and Souvenir d'un Ami. A superb specimen of Celine Forestier about 8 ft. through, though covered with buds, was not at its best. This fine group occupied, with a collection of smaller plants, the entire space at the end of the large central hall, and was, of course, the principal attraction. The collection of ten Roses in 10-in. pots was likewise very fine, and comprised Perfection de Monplaisir, Mad. Therese Loret, Souvenir d'un Ami, Duchesse de Vallombrosa, Comtesse de Serenye, Mad. Margottin, Penelope Mayo—a new hybrid perpetual of high merit—Mad. Lacharme, Alba rosea, Jean Ducher, and Mad. Lambard, a new Tea of fine form and a pretty suffused flesh tint.

The dinner-table decorations were, on the whole, very fair. In the class for an arrangement for twelve persons there were four competi-

tors. The best was executed by Messrs. Dick Radclyffe & Co., High Holborn. In this there were three central stands, lightly and tastefully arranged, Grasses, Rhodanthes, Maiden-hair and climbing Ferns, Anthuriums, Lilies, Azaleas, and Pelargoniums being the chief materials employed. The second best arrangement was likewise good; in the central stand there were Cactus blooms, Eucharis, Marguerites, and double Poet's Narcissi, mixed with elegant fronds of Maiden-hair Fern and feathery Grasses, &c. The third table had too much glare of colour and too many Fuchsia flowers, which marred the otherwise good effect. There were five tables arranged for six persons. The best, from Mr. Buster, had in the central vase the brilliant scarlet blooms of Delphinium nudicaule, an unusual flower in these arrangements, elegantly mixed with white Scillas, Brome Grass, Poet's Narcissi, while climbing Ferns (Lygodium) draped the stem of the epergne, the base of which had a pretty arrangement of Azaleas, Maiden-hairs, Nephrodiums, &c. In the small glasses were Pancratium blooms, mixed with a few leaves of Grass and the pretty Begonia Digswellensis, a fine winter-blooming kind. The second best table had Gloxinias, Azaleas, and Hoteia japonica. The third was pretty, though somewhat heavy, there being too many large flowers, such as Roses, Cactuses, Azaleas; and the two other exhibits were also heavy. There was but one competitor in the class for a pair of vases, the decorations of which were not to be less than one yard in diameter.

Messrs. Jackman & Sons' fine exhibition of Clematises was still on view, though somewhat more reduced in number than hitherto. Of the finest kinds not mentioned in our last report were Robert Hanbury, a superb free flowering variety; Symesiana, a large flowering kind of the lanuginosa type, deep lavender in colour; Princess of Wales, rich purple; Blue Gem, rather lighter than the last; Marquis of Salisbury, a deep, velvety violet-purple, the darkest colour in the exhibition; Lady Caroline Neville, deep mauve, a superb specimen, fine flowered; Miss Crawshaw, a new variety of a delicate purplish-rose tint. This collection was effectively arranged with Rhododendrons and other plants in an isolated group in the park.

The extensive and singularly attractive exhibition of artificial flowers, shown on behalf of the Flower Girls' Brigade, ought not to be omitted. The flowers were admirable imitations of real flowers, far superior to those usually seen; indeed, it needs a close inspection to discern the deception.

LATE NOTES AND QUESTIONS.

Virginian Date Plum Shedding its Flowers.—I enclose a spray of this Plum (Diospyros virginiana). You kindly inserted a paragraph a few weeks since in which I asked to be favoured with suggestions as to why the flowers drop. I am sorry no answers have been given. The flowers are all dropping this year, as they have in previous years. They reach a certain stage and then fall off. Any explanation or suggestion would be considered a favour.—T.

Potentillas.—Will any grower of Potentillas be kind enough to give me some practical directions as to their culture? Do they like manure or not? and if so, what kind suits them best?—DEVONTERNS. [A little leaf-mould would probably be the best manure for them, and if your ground is light and dry a mulching of some kind would benefit them.—M.]

Corn in Ancient Britain.—"Peregrine" is mistaken (p. 516) in saying that the Romans developed Britain into a Corn-growing country. If he will consult his Cæsar he will find that there was plenty of Corn in England when Cæsar landed.—H. N. ELLACOMBE, Eiton.

Ridge Cucumbers.—What is the best mode of growing these for market? Is it too late to sow the seed now? Would it do to sow it where it is to grow?—G. P.

Ants.—I frequently see enquiries as to how to destroy ants, for instance, on p. 485, May 7. Here we are overrun with them terribly, and the only remedy that I find at all efficacious is to water them with petroleum and water, but of course only where there are no plants to damage.—ED. LLOYD, Bari.

Pansies.—G. O. C.—They seem to be suffering from drought. Give them a good drenching overhead in the evening after the sun has left the beds. If that does not mend matters cut them over and start afresh.—M.

Skeletonising Leaves.—I saw lately a fine collection of these, and am desirous of having some of my own; how am I to proceed?—C. S. EITCHIE.

Fuchsias.—Miss L.—Try Mr. Ware, of Tottenham, or Messrs. E. G. Henderson, Edgware Road.

Labels.—E. J.—We do not know. Apply to the secretary of the Society of Arts, John Street, Adelphi.

C. C. Y.—A strong and fine and richly coloured Oxlip, or more properly a Primrose with a raised up stem.

J. D.—The Potentillas sent are very beautiful, but not better than others already in cultivation.

Names of Plants.—R. T. V.—1, Raphiolepis ovata; 2, Calceolaria violacea; 3, Polyzala Chamebuxus.—W. H. W.—Hoya carnosus.—G. J.—Claytonia perfoliata.—E. St. A.—Alonsoa incisa.—F. R. M.—1, Seed of Abrus precatorius; 2, Veronica pallida; 3, Linaria Cymbalaria.—W. B.—1, Dendrobium Parishii; 2, a Bulbophyllum, but we cannot name the species; 3, D. Freemanii, one of the several varieties.—Mrs. D.—Lonicera Ledebouri.—J. R. D.—Pyrus Aria, white Bean tree.—J. D.—1, Saxifraga lingulata; 2, S. crustata; 3, Chrysanthemum frutescens var.—W. M. S.—1, Peperomia species; 2, Cattleya Harrisonii; 3, send when in flower; 4, Begonia semperflorens.—J. M. K.—Camassia esculenta.—E. Molyneux.—1, Viburnum Lantana; 2, Ranunculus acemifolius fl. pl.; 3, Phlox frondosa; 4, Ribes serotinum; 5, Amelanchier florida; 6, Syringa Josikae.—S. F. T.—Lycaste Deppei.—Mac.—1, Polemonium coruleum; 2, Saxifraga hypnoides var.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

A LANCASHIRE GARDEN.

POSSIBLY some of your readers may feel interested to hear some of our experiences, as, after many disappointments, we have succeeded in getting a garden very full of flowers at all seasons, in spite of a very unfavourable climate and a difficult soil. This is a wind-swept district, sunless, except in April and May, and we have only about 1 ft. of soil on a bed of impermeable marly clay, holding water in winter, so as to rot the roots of many plants, especially bulbous plants, and hard in dry weather, grinning with cracks. Nevertheless, we have won the battle against Nature, which is the pleasure of all who have the gardening instinct, in spite of repeated discomfitures during the process.

The first thing was to get shelter, but trees grow naturally stunted and slowly where they have not an open subsoil. The remedy is to drain very deep and dig very deep. Being in a thickly populated neighbourhood, we had the advantage of deep sewers, into which we could drain as deep as we wished. We only gradually learnt the necessity for this deep culture, and were laughed at till the result was seen. We dug up the soil 4 ft. deep, draining deeper, and where this was done trees grow 2 ft. for 1 ft. compared with those planted without deep digging. In ten years we have got a fine grove of trees, which effectually keeps out the cutting west and north-west winds. Sycamores are the best trees for such a place. We are near the Mersey, and the storms bring salt spray, which is fatal to many trees. For instance, none of the *Abies* nor *Spruce* tribe live when they grow a certain height, nor other Conifers, even *Thujas* and the like, except the Austrian and Scotch Firs and the Larch Pine (*Pinus Laricio*). Other trees which do well are the Beech and Lime if planted inside the Sycamores, and the Turkey Oak, also the Birch. Our plantation does not extend to the south-west side, because of the magnificent view of the Welsh mountains, which at all hazards we must keep open. But we find the south-west gales, however strong, do not hurt our garden, because they are warm, while the north-west and even west gales kill the ends of the branches on that side, so that the trees extend towards the south-east, and assume very singular shapes if unprotected. With the Sycamores, however, for an outer fence and the other trees named inside, we have a flourishing grove of well grown trees, which effectually shelter the whole garden. Pear trees also make an excellent shelter, and are besides both useful and ornamental. It is astonishing how well they bear the wind, though we have them naturally planted as much as possible under the shelter of the other trees. They are planted separately as standards in groups on the Grass, and the pyramidal shape which is natural to them encouraged, and I think them as ornamental as the choicest trees and shrubs.

To return to the plantation. The stiff natural soil is surfaced to a depth of some inches with the lightest vegetable soil we could get—road sweepings, collected in dry weather (for we find that the muddy scrapings that are collected in wet weather always retain a tendency to cohere, whereas the sweepings keep the soil open), and with a surfacing of these and of decayed leaves, coal ashes from the house and greenhouses, and gravel and sand, which we get from ships' ballast, we find that all sorts of wood plants, such as Wood Anemones,

Bluebells (*Scilla nutans*)—blue, white, and pink—Daffodils of various kinds, chiefly the common Lent Lily (*N. Pseudo-Narcissus*), and poeticus, double and single, grow well. The former has here the pretty local name of Sweet Nancies, and with one sort or other the surface of the plantation is covered with flowers from February onwards. Just now the last mentioned flowers are in full bloom, and I am at a loss to decide which is the most charming. The white *Scilla nutans* should be planted in such places by hundreds, but the Yellow Trumpet or Ajax sorts of Daffodils are equally beautiful earlier. The old double Daffodil is coarse, though very effective for the back parts—I mean *N. Telamoni* fl.-pl.—but the Lent Lilies and all of the bicolor section, including the most useful and easily grown of all, *N. Horsfieldi*, flourish and increase to perfection under the trees, which have few leaves or none when they are in flower. Other things which cover the ground under the trees are winter Aconites, *Omphalodes verna*, many of the strong growing Mossy Saxifrages, and Wood Sorrel. Of course we never dig the soil; it is quite unnecessary, and even mischievous, a doctrine which you have often preached.

At the edge of the plantation we grow a multitude of flowers, which seem to flourish there even better than elsewhere. Dog's-tooth Violets, American Cowslips (*Dodecatheon* of several sorts, *integrifolium* being the brightest), common Primroses, and the seedlings of Dean's strain, *Primula cortusoides amoena* or *Sieboldi*, which is much finer than under glass, and *P. purpurea*, *denticulata*, and *japonica*; *Cyclamen hederæfolium* (which ought to have 6 in. of stones under it), *Tulipa sylvestris*, which is quite naturalised, and other flowers which I shall be happy to enumerate should any one wish to know what has succeeded in such a situation. I confess many of them were a surprise to me. I should have expected the tree roots to dry up the moisture too much, but doubtless the deep digging is the secret. In dry weather the moisture rises from below by capillary attraction where there is a sufficient depth of loose soil. Of course Ferns grow well under the trees. In the garden we also find the numerous sorts of *Narcissus* very charming, and these keep a succession of flowers when they are most needed. Then the new strains of *Polyanthus*—White Queen, Gold Laced, Hose-in-Hose, and other sorts—*Auriculas* (alpine), hybrid Primroses, Webb's Giant Cowslips, all raised by hundreds from seed with the greatest facility and planted in profusion, produce a most beautiful effect, and keep the garden gay till the summer flowers begin. They are hardly over yet; indeed, *P. japonica*, one of our most useful sorts, which seeds itself plentifully every year, has hardly begun. It may seem useless to name such well-known plants, but when I go into garden after garden and see so few flowers when ours is teeming with them, I am tempted to think that an account of how easily a garden, even in an unfavourable situation, may be what a garden ought to be—a place full of flowers—will perhaps help the good work you have so effectually promoted, viz., encouraging the growth of hardy plants. All this time, too, we have had another feature, which I will perhaps describe at a future time—a rockery constantly gay with alpine gems as well as other flowers, which, though not strictly alpine, succeed best on raised places.

I have forgotten to name Christmas Roses and Hepaticas, which is very ungrateful, as they are our chief resource very early in the year. We grow them in large numbers, and they are very floriferous, yielding flowers by hundreds. Strange to say, they have the reputation in this neighbourhood of being difficult to grow, and as to the Hepaticas, as I have often been told, impossible. Yet they do grow, and

very well. What is the secret? Again, I believe, a deep soil, coupled in their case with one other recipe, simple enough—let them alone. Gardeners are always wanting to remove them and divide them, but we find the true plan is to prepare the soil well at first, in the case of such soil as ours, by lightening it and making it open by means of sand, leaf-mould, and coal ashes, and then never disturb them, and they grow in a few years into glorious patches 3 ft. and more across in the case of the *Hellebores*, and 1 ft. across in that of the *Hepaticas*, covered every year with flowers. The Christmas Roses we cover when in flower with large hand-glasses to keep the rain from splashing up the soil and spoiling the flowers, and both do best when their leaves are sheltered by low shrubs or a hedge, or something of the sort, and saved from being blown about and the leaves destroyed; our *Hepaticas* keep their leaves all the year. Both these plants seed freely with us, and we have fine batches of seedlings.

The seed must be well watched and gathered before it sheds, which it quickly does when mature; and as it is quite green when mature, I think people for this reason have usually neglected to save the seed. And yet I believe the best plants are to be got from seed which has been allowed to grow up without ever being transplanted. An old English gardening book—"Eden, or a Compleat Body of Gardening," 1757—dwells at great length on this, and winds up with the remark, "Gardeners are fond of transplanting, but it is often attended with damage to the plants. Some bear it unhurt, others are assisted by it, but there are many to which it gives a check never perfectly to be recovered, and this is one. It is wonderful the gardeners have not found out this obvious method; they are all sensible that the removings of this plant are prejudicial to it, and even the most vulgar of them say if they are often removed and parted they die, yet they advise the sowing of the single kinds in boxes and propagating the double by parting of the roots. Judicious reader, what is your remark on this? that there are men to whom their own experience is useless?" I should add that we sow the seed of the Christmas Roses and *Hepaticas* as soon as gathered. The plants come up next February. E. H.

Aigburth.

The East Wind and Journalism.—I have read with much amusement Mr. Fish's remarks under this head and his disparaging allusions to those who have claimed priority as regards the practice of hanging stones on fruit trees. It will be remembered that Mr. Fish himself was the very first man who claimed priority in the matter. It appeared that many years ago he had tied stones to the ends of his Grape bunches to make them behave themselves. Those who have taken the pains to read Mr. Fish's communications during past years can form some idea how long and persistently an east wind can blow without ceasing; and in the matter of Nature's system of training fruit trees, which Mr. Fish says has been taught from Adam's time, if any one will read the different pamphlets written by Mr. Fish on fruit culture, they will then see how futile Nature's attempt to teach Mr. Fish has been.—AN OLD HAND.

Sawdust and its Uses.—Mr. McARDell, writing of sawdust, says that he has known it applied beneficially on the garden and on the farm for the last thirty years, and yet he admits directly afterwards that in its crude state it is good for nothing but growing fungus, a fact I think that no one acquainted with it will dispute. If this be so, how, I would ask, could it be applied beneficially? for if only used as an agent to absorb liquid manure, it could not be the sawdust that did good, but the manure. I would recommend everybody to abstain from using sawdust, feeling sure that if they do they will find the mischief wrought by its presence in the soil to be not very easily remedied, especially if it happens to be near trees and shrubs, or in ground that is not frequently dug or disturbed. Why sawdust is less hurtful in heavy land than in that which is light is because it lays wetter, and therefore does not generate fungus in the way it does where the conditions are more favourable to the

formation and spread of that parasite. What is of far more value in heavy soil is long, strawy, stable manure, which helps to aerate it and keep it open, and in its gradual decomposition forms just the medium for the tender fibres of plants to feed on. Road scrapings, street sweepings, sand, or ashes are also of great benefit, and nothing pays better than either of them for carting, as instead of their effect being fleeting and transitory, it lasts for ages, and has an immediate disintegrating influence when once incorporated with the soil. As to burying prunings, woodrubbish, tree roots, &c., alluded to by Mr. McARDell, few would think of doing so, and no wonder that where it was done trees died, as no surer way could have been thought of to accomplish their destruction.—S. D.

GARDEN THOUGHTS.

I WOULD observe of Cornish gardens generally, that, favoured as they are, in their glens and glades and on their sunny slopes, by climate and culture, nature and art, they present a striking contrast, which much enhances their beauty, with the moorlike and monotonous scenery of the country through which you pass to see them. A Cambridge don, inviting Dr. Whewell to visit him in Cornwall, is said to have given to that illustrious scholar this direction: "When you get into the county, keep going on till you see some trees—those trees are mine." And the late Bishop of Exeter, who had a habit of speaking as he thought and quoting as he spoke, used to remark to his neighbours, "Your shrubs are trees, but your trees are scrubs." You will find glorious Conifers 50 ft. in height, but you will not find timber trees. And now, alas! those gracious gifts by which the generous earth more than repaid the sterility of her surface by the abundance of her precious ores within, have lost their power to compensate; and when I asked why there was silence and desolation around the mines and only here and there a chimney smoked, the answer, which I received was this, "They cannot compete with foreign imports."

Looking down upon the estuary, from which the Fal flows into the sea, commanding lovely views of both, of the former to the left, and of the lakes as you look to the right beyond Falmouth, "a havyn very notable and famos," as Leland writes, "and in a manner the most principale of al Britayne," the garden at Porthgwenidwen, with its pleasant paths, conducting you from the fair home above to the banks and bathing place below, amid rare trees, and shrubs, and flowers, gracefully arranged and tended with skilful care, is one of the most charming of our cultured grounds, reminding us of Spencer's words,

It was a chosen plot of fertile land,
Amid wild waves set like a little nest,
As if it had by Nature's cunning hand
Been choicely pickèd out from all the rest.

A list of its treasures would be longer than that which Leporello made of the ladies who were specially admired by his master, and I will only mention to justify my quotation from the poet, that whereas the *Aucubas* which I had left at home were cut down to the soil, and their blackened leaves resembled the remnants of a fire, here they were golden pillars 10 ft. high, and covered with scarlet berries; and the *Embothrium coccineum*, which, with its vivid crimson flowers and glossy foliage, is one of the most beautiful of all plants, and which, Paxton tells us in his "Botanical Dictionary," attains a height of 3 ft., was here a fine, tall garden shrub, with an abundance of healthy buds.

Taking a preliminary view of the conservatory from the drawing-room, my gaze was rivetted by a gem of purest ray serene, which fascinated me as a new star fascinates an astronomer, or a new hunter an undergraduate. What

could it be? Nine heads of beautiful bloom, the flowers white, of exquisite purity, 5 in. across! It was *Rhododendron Aucklandi*, and dear ever since has that flower been to my memory, not only as a florist, but as a teacher of humility. For now, whenever I meet with one of those objectionable brethren, who think they know everything and possess everything which is to be learned or possessed in floriculture, I make a point of suggesting, "Of course, you have *Rhododendron Aucklandi*" (which, of course, they haven't); and, whatever they say or show, I keep wishing they could see "*that plant*," until they hate the whole *Rhododendron* family, and are evidently thinking that if I were relegated to the Land's End, to contemplate the flower in question, they would not be annoyed by my abrupt departure—only detaining me to ask, "Where can we get it?" and receiving the answer, "Can't say." I have sought, where I thought I should surely find, at the birthplace of those lovely *Rhododendrons*, the Princesses Royal, Alexandra, Alice, Helena, the Duchesses of Edinburgh and Teck, the Countess of Haddington, and the untitled, but admirable, Taylors and Veitchianums; but when I announced the object of my desire (with the sure confidence of a man who asks at Gunter's for an ice), "I want a plant of *Rhododendron Aucklandi*," the reply which I received, though it was less curtly and more courteously expressed, was in effect this, then "want must be your master."

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And "there was a round pond, and a pretty pond too," quite filled with the flowers, deliciously fragrant, of the *Aponogeton*. The plant had been placed, in the first instance, and in accordance with the suggestive meaning of its name—that is, "near to water"—upon a pile of stones which rose just above the pool. There it existed for some time, but that was all. There was no development of vigour, no efflorescence. One memorable day, a boy, playful, impulsive, quaint in imagination, quick in action, was wandering in this delightful garden, accompanied by a pair of those idle hands, for which we know that a large assortment of mischief is always kept in readiness. He beheld the *Aponogeton*, and whether he despised it as a failure, or whether from its isolated and prominent position it suggested that fascinating, because somewhat peculiar, diversion which is known as "duck and drake," or whether, as I have intimated, he was impelled by a spirit of mere mischief, I cannot say, but the boy began to bowl at the flower-pot, and he very soon bowled it over. And now, imploring all parents and guardians who may have lively lads about them to keep this number of THE GARDEN out of their sight, lest, on reading that which follows, those young gentlemen should consider it their vocation to shy at every pot they see, I have to record the unhopd and happy consequences of that *bouleversement*. The *Aponogeton*, thus hurled from its exalted place, and finding itself in low water, at once began, like many a noble mind which has been lethargised by inaction and roused by some sudden shock, to make sweet uses of adversity, displayed all its latent powers, established itself in a business, which grew and prospered in all its branches, and steadily accumulated a floating capital, which literally filled the surrounding banks.

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Passing from the Upper to the Lower Houses, from the Lords, or rather the Ladies, to the Commons, that is, the general range of glass, we come first to an arrangement which may be commended as a model, all the more worthy of imitation because it has now been tested for a period of thirty years. The range consists of (1) a forcing pit, 42 ft. by 8 ft., divided into three compartments, in which pot Vines, Melons, Cucumbers, &c., are grown in quick succession, with a healthful vigour of foliage and fruitage which I never saw sur-

passed. Then (2), with a walk intervening, there is an Orchid house of the same length, 10 ft. wide, in two compartments, containing a choice collection of these lovely luxuries, which are beyond my exchequer and experience, and of which I only remember *Odontoglossum Alexandræ*, and amid countless beautiful *Cypripediums*, *hirsutum*, *Lowi*, and *niveum*. On the north side of the Orchid house there is (3) a row of frames for striking, to which heat may be given at pleasure. The entire cost was £160, and the consumption of fuel is about 9 tons of culm (at 14s. per ton) per annum.

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But I have made special mention of this range of houses, of which the reader who possesses *The Journal of the Royal Horticultural Society* will find a full account illustrated in vol. vii., part i., because, though the heating is admirable, the chief source of its complete success is the constant supply of fresh air. Canon Phillpotts maintains and proves that the most perfect system of heating will fail without good ventilation day and night, and that the air of plant houses should be in direct proportion to the light, the moisture, and the heat. At the same time, care must be taken that the temperature is not lowered too much or too suddenly by the admission of external air, while, on the other hand, it must not be dried by artificial heat. To obviate this difficulty there is an air chamber between the two buildings, from which several small drains open into the pits, &c., 6 in. above the floor, with gratings about 6 in. square of perforated zinc. From these a constant supply of fresh air in small and broken quantities arrives, so that there is no strong draught, and this passing over the surface of the pipes under which it enters loses its chill, while the open troughs supply it with water. This introduction of good air has been continued without intermission since the range was erected in the year 1850.

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After recording, something more than a quarter of a century ago, his first satisfaction with this excellent system in the journal to which I have referred, the writer concludes: "Such successful results can only be expected where the gardener not merely understands, but loves his business. It is but common justice to add that I have the good fortune to be so assisted, and that I highly value the care, attention, and zeal with which my plans have been carried out." Though there have been changes since then, the worthy Canon has still the same cause for congratulation, for in horticulture, as in all things else, a good master attracts good servants, and keeps them. When men are united by mutual appreciation, not only of the beautiful, but of the delightful also, that brotherly intercourse should never cease.

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I have only left myself space to say that Trelistick, whither I was driven by my kindly host, is, with the exception of Mons. Dognin's grounds at Cannes, the most perfect site for a garden which I have as yet seen, with its undulating slopes, and lovely views of land and water; and that at Tregullow there is a fair garden of glorious *Rhododendrons* and stately Conifers, "the which," as Pepys has it, "did please me mightily."

S. R. H.

***Myosotis dissitiflora alba*.**—I am pleased to inform Mr. Fish (p. 523) that a true white *Myosotis dissitiflora* is in existence, for in a neighbouring garden I lately saw it in perfection, and a lovely plant it is, having the dwarf spreading habit of *dissitiflora*, which is too well known to need description. It will probably prove to be the best white flower for spring bedding yet sent out. I have not seen the variety called *splendens*, and therefore cannot speak of its merits. The variety I mention is the exact counterpart of *dissitiflora* and of a clear white colour.—JAMES GROOM, *Linton*.

NOTES FROM DUBLIN.

IXIOLIRION with me is quite a beauty—I mean *I. tataricum*, which Dr. Regel kindly sent to me last autumn. It contrasts beautifully with the pale sulphur-bellied *Primula sikkimensis*, which is to my mind one of the most distinct and lovely of all Primroses. In shape and colour it is amply distinct, and delicately fragrant withal. *Meconopsis nepalensis* opened the terminal bud of a 30-in high flower-spike yesterday, a lovely light yellow Poppy flower. White Paris Daisy and *Geum coccineum* is a good and bright combination. Some of Cripps's newer Clematises are robust and floriferous on walls after the late winter, large flowers of good substance of the lanuginosa type. *Veronica Hulseana*, also, is delicately beautiful, a distinct shrub, hardy here, and a nice contrast to the yellow flowered Cabbage Bush (*Vella pseudo-Cytisus*).

Hedychium Gardnerianum is coming up very strongly under a western wall, none the worse for its winter's sleep in the open air. Beside it the weird *Saurodon guttatum* has reared its great lurid blotched spathe, and its *Stapelia*-like odour attracts the flies in quantity. Even *Calceolaria Pavoni* is strong and healthy, but then it had 12 in. of dry ashes over its head. Our first Lily, *L. pyrenaicum*, opened on May 23, and another of the *Thunbergianum* type to-day, a fine orange-red saucer thrown up to the sun. *L. pomponium verum* and *L. Szovitzianum* are strong and promise us a treat, so also the single and double-flowered *L. tigrinum*, *auratum*, *speciosum*, *testaceum*, *Krameri*, and the delicate pink-blossomed *L. Washingtonianum*. *Ramondia pyrenaica* is very pretty just now, but it varies, one of our forms being far in advance of the other in size and colour of flower. Plants from seeds of *Eryngium giganteum*, sent eighteen months ago, are now throwing up stout flower-stems. This *Eryngium* is a distinct and effective plant even in the leaf stage.

Meconopsis Wallichii, of which we have planted out a few, is growing splendidly, and one or two are throwing up flower-spikes. I wonder the old double red *Lychnis dioica* fl.-pl. is not more generally grown than it is. How well it blends with the white rosettes of the double Poet's Narcissus. Those who planted bulbs of *Gladiolus Colvillei albus* under warm walls may now look forward to their harvest of one of the most lovely of all white flowers. Mr. Poë sent me seed of his fine scarlet *Anemone coronaria* the other day, and I hope to raise a stock of it. A bed of selected seedling *Anemones* is a fair sight to see in April. What a wonder they are not oftener grown than they are! Now is the time to sow seeds of all hardy perennials in prepared beds out-of-doors or in a cold frame.

Sifted soil from the potting shed is excellent for such a use, and the seeds should be thinly sown. Fine stocks of most kinds of effective hardy flowers may be raised from seeds sown now. Pansies are a great treat early in the morning, and I have selected cuttings from all our best kinds in order to have them rooted and planted out early enough for them to become established ere winter sets in. These early-struck cuttings also give the freshest of autumn flowers. An unnamed blue, of good compact shape with stout stalks from 6 in. to 8 in. long, is so useful for cut flowers that I am increasing it especially for that purpose. Here is a field for future improvers of Pansies. Give us shapely rich selfs on long stalks for the cut-flower trade. Beautiful as Pansies are growing, they possess a charm unseen unless brought into the house and near the eye. Some Pansies are delicately fragrant, too, and this is a special point to be attended to in raising the long-stalked sorts for cutting. Primroses still linger on cool shady borders. How lovely some of them are! Oxlips from Rodger, McClelland & Co., of Newry, have been grand enormous trusses of yellow or sulphur orange-eyed flowers, ten flowers to thirty flowers in a truss. Mulching with leaf-mould in the spring is a course of treatment that assists them in a remarkable way. It keeps the earth around them cool and moist, and the roots revel in it, thus adding great strength to the scapes, and substance alike to leaf and bloom.

Arum orientale is a singular plant; all the winter it has been sending up its fresh green *Richardia*-like leaves. If the frost and snow destroyed one batch, no sooner did fine weather set in than up came new leaves. Now the tall spathe appears a graceful little column of ivory-white nearly 1 ft. high, delicately tinted with soft green near its twisted apex. Two little studies of leaf beauty are *Podophyllum peltatum* and *Ligularia macrophylla*. Funkias are now at their best. How they luxuriate in deep rich earth beneath the shade of trees! No indoor or hothouse plants can rival these in delicate colour and leaf beauty.

Caladiums look thin and tawdry beside their massive tissues, graceful curves of nerve and leaf margin, and delicious colour harmony.

All who grow Fuchsias and wish to increase them should beware of disturbing these plants in autumn or winter. The rule holds good with many other fleshy rooted plants, but with these in particular. In April, however, just as the crowns burst up through the soil, one may cut a clump into mincemeat almost and every bit will grow. If done in rainy weather, no sign of propagation or removal will be visible, the transplanted pieces growing away at once without any check whatever. The old white double Rocket, and some of the newer varieties of *Pyrethrum roseum*, promise us a harvest of beauty in a few days. What a lovely plant is the old *Calceolaria violacea*! Planted at the foot of a warm wall, it is quite hardy—a herbaceous plant, in fact, dying down every winter. In a pot in a cool greenhouse, however, it is a little shrub, and just now it is covered with its quaint helmet-shaped lilac flowers, each dotted with purple inside.

Another plant of similar character and behaviour as to hardiness is the double-flowered *Rubus roseiflorus*, just now covered with its little green-eyed roses. Wherever choice white flowers are grown this *Rubus* is well worth a place. I wish to know where I can procure some of the old, tall, late flowering Tulips which one used to see in old cottage garden borders years ago. Robust-habited kinds they were with stout leaves and long gently undulating stems high upon 2 ft. high, each bearing a dusky purple, red, white, red-flamed, or yellow bloom the size and shape of a hen's egg. How lovely some of these flowers really were, and as har'y as the paving-stones beside which they grew! As vase flowers they were exquisite along with white, bluish, and red Paeonies and purple Iris. One great charm they had was a delicate fragrance, and it was not any drawback that they blossomed in June. Whatever their origin, they were much later and altogether distinct from the dwarf early Dutch kinds, which as a rule cease flowering in May.

Lithospermum fruticosum grouped with *Phlox Nelsoni* on the rockery is now delicious. The big orange *Trollius napelliformis*, nearly 3 ft. high, has been grand. A symphony of Solomon's Seal and pale lilac German Iris has been a pleasure to people with an eye for form and colour beauty, and Bluebells on a carpet of *Sedum acre aureum* is another of the thousand and one beautiful ways in which hardy flowers may be grouped in order to enhance their beauty.

F. W. B.

Parks, Commons, and Open Spaces.—According to a recent report of the Metropolitan Board of Works, the various metropolitan parks and recreation grounds under the Board's control comprise altogether an area of 1676 acres, or a little over 2½ square miles, and when it is remembered that what is known as the metropolitan area, that is to say, the area defined by the Metropolis Local Management Act, 1855, and under the jurisdiction of the Board, extends over 122 square miles, and has within its limits a population of more than three millions and a half, it will be acknowledged that the aggregate of these pleasure grounds is after all but small, and that were it not for the royal parks, which happily may be regarded as assured public possessions, and for a few other commons in and near the outskirts of the metropolis which are not under the Board's control, London would, in proportion to its size and population, be hardly so well provided with places of open-air resort as some other cities and towns. The places of recreation maintained by the Board are these:—Finsbury Park, 115 acres; Southwark Park, 63 a.; gardens on the Victoria, Albert, and Chelsea Embankments, and in Leicester Square, 14 a.; Blackheath, 267 a.; Hampstead Heath, 240 a.; Shepherd's Bush Common, 8 a.; London Fields, 27 a.; Hackney Downs, 50 a.; Well Street Common, 30 a.; North Mill Field, 29 a.; South Mill Field, 28 a.; Clapton Common, 9½ a.; Stoke Newington Common, 5½ a.; waste land at Dalston Lane and Grove Street, Hackney, 1 a.; Tooting Beck Common, 144 a.; Tooting Graveney Common, 63 a.; Clapham Common, 220 a.; Bostall Heath, 55 a.; Plumstead Common, 110 a.; Shoulder-of-Mutton Green, 4 a.; Wormwood Scrubs, 194 a.; total, 1676½ acres.

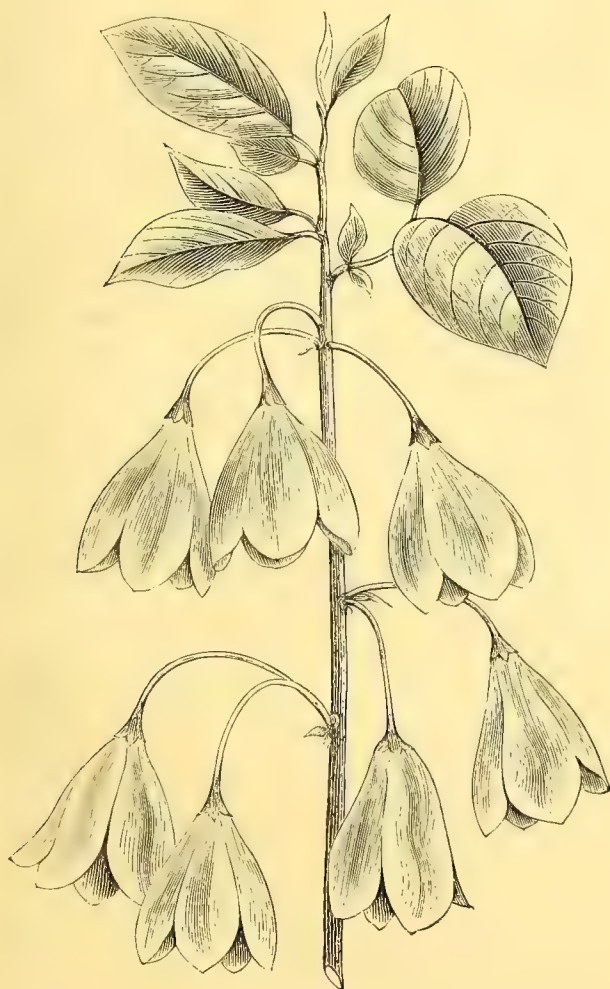
Hardiness of *Centaurea candidissima*.—Notwithstanding the severity of the past winter, *Laurustinus*, Bays, Laurels, Escallonias, &c., having been killed or cut to the ground, this *Centaurea* has wintered safely here in the open air, and several plants may be covered with flower-buds. I attribute their safety, however, to their being planted on inverted roots of trees, on which they are some feet above the ground, where they have more perfect drainage than they would otherwise have. When planted in flat beds I find they invariably perish.—J. H. W. T., *Carlton*.

TREES, SHRUBS, AND WOODLANDS.

THE SNOW-DROP TREE.

(HALESIA TETRAPTERA.)

THIS, one of the most interesting of trees when in flower, is so different from most others, that it at once arrests attention, and certainly a well flowered example of it with its slender branches beset with myriads of small white bells is a beautiful sight. The blossoms strikingly resemble those of the Snowdrop; hence its popular name, though in North America it is also called the Silver Bell tree. It is considered to be among the most ornamental of the deciduous trees of that country; in South Carolina it

The Snowdrop Tree *Halesia tetraptera*.)

reaches a height of from 15 ft. to 30 ft. in moist localities along the banks of rivers. In this country some trees of it have acquired full development, but only in old-established gardens. It has a spreading habit of growth which is comparatively rapid. It succeeds well in any position, though best in a somewhat sheltered one not too dry, and it forms highly ornamental isolated specimens on lawns. Though it has been introduced for upwards of a century, it is nevertheless still much too rare in gardens, few trees being more worthy of being extensively known and disseminated. Our engraving was prepared from plants of it that flowered in Messrs. Ellwanger & Barry's collection in the Mount Hope Nurseries, Rochester, N.Y. There are two other species which are or were in cultivation, viz., *H. diptera* and *H. parviflora*, but as they are seldom met with we need not do more than name them.

W. G.

EFFECTS OF THE WINTER AT LONGLEAT.

Now is a good time to find out all the killed and wounded trees and shrubs caused by the long-continued severity of the weather last winter. One cannot help feeling a pang of sorrow for the loss of some familiar object the eye has been accustomed to admire, more particularly at this season of the year, when they used to be clothed in refreshing greenery, but are now standing leafless and apparently lifeless, not unlike gaunt monuments reared up in memory of some departed hero. Amongst trees the Lombardy Poplar seems to have suffered most injury; many fine specimens in this locality are quite dead, and others if not quite killed are pitiable subjects to behold—fine trees that have adorned the landscape for nearly a century, some of them from 80 ft. to 100 ft., high. It is a matter of sincere regret to arboriculturists and admirers of landscape scenery that the Lombardy Poplar has succumbed in so many cases. I would fain hope it is not general throughout the country, for this tree can ill be spared, whether rearing its slender head amidst and high above stone and brick buildings, or in woodland districts surrounded by other trees, it is none the less striking and effective; indeed, I think its appearance in any position is always pleasing and welcome to the eye. Deciduous forest and ornamental trees, I am glad to be able to say, have not suffered much, as a rule, from the past winter; with the exception of the Lombardy Poplar, very few losses can be found. Amongst shrubs more deaths can be recorded; the *Arbutus* is sadly injured, some quite killed, others partially so; few escaped damage more or less. *Laurustinus* bushes did not suffer so much as the *Arbutus*—a few plants killed where exposed to cutting winds in draughty positions, and also in damp situations many were badly cut back. The Portugal Laurel almost escaped injury, whereas old bushes and hedges of the common Laurel were killed to the ground, and again, in other positions free from draught and damp, are high bushes 40 ft. high, and as many yards through, hardly touched by the frost in the least. The common Ivy on walls even did not escape the scorching-like blast; some walls that are exposed to cutting and prevailing winds are still bare of leaves, the young growth of leaves just beginning to unfold. Box bushes in one situation are severely injured; old trimmed plants standing on the edge of a lake and fully exposed to cutting winds, are now sorry, withered-looking objects. *Grise-linia littoralis*, after standing out in the open ground for several winters and had grown into beautiful shining bushes, are now things of the past, being quite dead. *Photinia serrulata*, *Bupleurum fruticosum*, *Viburnum Awafuki*, *Raphiolepis ovata*, *Euonymus japonicus* (green as well as variegated), *Menziesia polifolia*, *Olea ilicifolia*, and the double-flowered Gorse are all killed. Of *Catalpa syringæfolia aurea* out of half-a-dozen strong plants not one is living; for the first few seasons they thrived vigorously, and seemed to bid fair to become in a very few years grand ornamental trees, but the winters of '78 and '79 crippled and weakened them all so much that during last winter they were killed outright; it seems to be more tender than the common variety, and I fear is not destined to flourish as a park tree in our climate. *Hydrangea paniculata grandiflora*, like the last mentioned, also succeeded well and bloomed beautifully for a few years; last winter, however, appears to have been its death, for several plants of it have disappeared altogether. I am sorry to lose this fine shrub, on account of its large and beautiful flowers. It was quite a superior flowering shrub. Amongst trial plants the following apparently have gone the way of all living since last summer: *Idesia polycarpa*, *Indigofera dosua*, *Aralia japonica*, and *Buddlea globosa*. *Xanthoceras sorbifolia*, a puny, weakly grower at best, was killed to the ground; it has, however, just sufficient life left to push forth a weak shoot through the soil. Doubtless our climate is too cold for this Chinaman. *Leycesteria formosa* was killed to the root in some quarters, while on high-lying, dry, wooded hills it is scarcely injured. Pampas Grass and *Arundo conspicua* are killed by the dozen; fine large old plants that have stood out in the woods in groups, and as single specimens for many years, are now little better than bundles of dead and withered Grass; a few show signs of a little vitality, but I fear they will never recover sufficient strength to flower well again.

Of Conifers, the list of deaths and injured is not a long one; they seem to me to have stood the test of the past memorable winter with but few real losses. *Podocarpus Andina* succumbed, whilst its congener *P. alpina*, growing close beside it, was not the least touched by frost, thus proving that the latter may be classed

amongst the perfectly hardy Conifers. One *Araucaria imbricata* in the flower garden was killed, and not far distant stands an *Araucaria Cunninghami* which quite escaped injury. Some of the tenderer kinds of Junipers died, and others are so much disfigured that they were not worth growing on. Amongst *Retinosporas*, of which we have a good collection, *R. decussata* was the only one killed or even injured; the golden varieties are quite as hardy as the green ones. That very pretty and neat, though, I am afraid, slow-growing variety called *R. tetragona aurea*, after being fairly tested in the open ground without the slightest protection during the past three or four winters, is now a bright gem without the slightest blemish. *Cupressus Lawsoniana lutea* and *Juniperus chinensis aurea* are also quite free from frost bite, and can fairly be trusted to take no harm in exposed situations. The free-growing and lovely-coloured *Cryptomeria elegans*, although delicate looking, is as hardy as any Conifer we have growing. It is planted in various situations, high, low, and in damp positions, but not one has been killed, or even injured worth mentioning.

The following are more or less disfigured, not, however, beyond recovery: *Arthrotaxus laxifolia*, *Dacrydium Frankini*, *Fitzroya patagonica*, *Widdringtonia cupressoides*, *Thuja Vervaeana*, *Biota semperverescens*, *Taxodium sempervirens alba spica*, and *Biota elegantissima*. Of wall plants, *Stauntonia latifolia* after wintering out about 13 years is quite dead; *Escallonia macrantha* and *Ingrami* lost all their foliage and the young wood is cut back—just beginning to make young growth and will evidently recover. *Azara microphylla* suffered similar to the *Escallonias*. Old-fashioned Roses on cottages had most of their young wood killed. *Ceanothus* and *Jasminum* of sorts are more or less injured. After all it may be said that wall plants have escaped as well as one could have expected; save the loss of the *Stauntonia*, all the others will flourish again.

To change the subject to a brighter aspect (like the dark cloud with a silver lining), I do not think the ornamental woods here ever presented so beautiful a sight; the rides and drives teem with blossoming trees and shrubs. Thorns (white, pink, and scarlet), Bird Cherries, Laburnums, Lilacs, Brooms, Azaleas, Pyruses, and Barberries, each tree and shrub seems weighed down with clouds of blooms, scenting the air with sweet perfumes. Covering the ground, the wild Hyacinth and Anemone form a lovely coloured carpet, varied by colonies of Lily of the Valley and the single and double white Narcissus, and in shaded spots the spotted-leaved Lungwort in masses is still conspicuously exhibiting its pink and blue flowers. The white wild Hyacinth, too, is a pretty sight in groups amongst the common blue variety. I hope to get a good stock of this from seed saved last year from these planted groups. Rhododendrons are literally covered with swelling flower buds. Such a season for blossom I cannot remember; can it be attributed in any way to the past old-fashioned winter? If so, I am almost tempted to say, notwithstanding a few deaths, May we get a few more of them.

GEORGE BERRY.

Longleat.

The Eucalyptus.—That the letters published in the *Times* and similar journals, advising the planting of this tree, should be accepted as trustworthy by readers of these journals was not remarkable. But it did surprise us to see people having some pretension to a knowledge of gardening planting trees which anyone who had paid the least attention to tree growth in any part of our country, even the most favoured, would know to be as hopeless as placing the Heliotrope in the open air to face an English winter. The value of the tree was long ago settled in our gardens, even before our recent hard winters began to make their mark. Yet thousands of trees were sold and planted, owing to the misleading advice given in the daily papers. We were reminded of the fact the other day by seeing the following note in the *Rural New Yorker*: "From our correspondence it will be seen that trees of *Eucalyptus globulus* 'nearly 30. ft. high' have been killed in Florida during the past winter." What we said all along was that the value of these trees has long been known to those who observe what goes on in our gardens. They may live for a few years in favoured spots, but not long. But even if they did live for a dozen years or more, they can never show the grace and vigorous characteristic of these trees in countries really fitted for them, such as California and the warmer parts of S. Italy. Among the various species recently tried in England, one called *E. coccifera* seems to withstand the cold best, and has survived even the past two winters. But surviving, and

making such progress as renders it worth while to plant a Gum tree, are different things.—*Field.*

THE FLOWER GARDEN.

THE DIFFERENT RACES OF DAFFODILS.

Our springtime has not been a too propitious one. Drought and easterly winds were the rule here during the time when our Daffodils were in bloom; therefore, however good their flowering, their duration was not so long as usual. Our first Daffodil, *N. nanus*, a dwarf but earlier form of *N. minor*, opened here on March 4, followed by *N. minor* and the great Trumpet Daffodil (*N. maximus*). This last deserves more than a passing notice. Mr. Brockbank does not allude to it in *THE GARDEN* (p. 521), but as he bestows so much praise on the far smaller and less showy *N. obvallaris* (Tenby Daffodil), it occurs to me that he has not got it in his collection. If that be so, he need not long desire it without his wish being gratified. I like *N. obvallaris* much. It is a sturdy-habited, dwarf kind with broad crowned flowers and glaucous foliage, and is well worth a place in all good gardens. I now and then meet with it under the name of *N. cambrius*. Of *N. maximus*, true, too much cannot well be said. I use the word true advisedly, for there is a Dutch *maximus*, a far less stately and distinct kind. *N. maximus* (*N. obvallaris maximus*, Mr. Barr calls it, I believe) under good culture is the largest and finest of all Daffodils whatever, taller than *N. lorifolius* var. *Emperor*, and far finer in point of golden radiance. I have measured scapes 2 ft. 9 in. in length, and leaves only 3 in. shorter, but, apart from its stateliness, it is in port and foliage amply distinct from all other Daffodils whatever, *N. obvallaris*, before mentioned, being the only one which in any way resembles it. Its large golden flowers are of great substance and very durable. It generally lasts a month or six weeks even fresh and beautiful in our borders, defying sunshine and dry winds better than all other kinds. If Mr. Brockbank will look again at my Monograph of the Narcissus under the heading "Explanation of Plates," p. ix., and turn to *N. bicolor*, he will find that I do allude to the forms of *N. Pseudo-Narcissus* having sulphur perianths. Mr. Tyerman sent me two forms of *N. Pseudo-Narcissus* from Tregoney with pale sulphur perianths and yellow cups, and these were exactly intermediate links in the chain which unites this beautiful variety (*N. bicolor*) with the common type of the species (the Daffodil, *N. Pseudo-Narcissus*).

Here and there in the upland pastures near the Dublin mountains we have a large flowered form with clear pale sulphur perianth and yellow cup. It grows luxuriantly, and is very showy towards the end of March. I merely consider these as pale forms of the common Daffodil, and as quite distinct from *N. bicolor* (true) which has pure white segments and a clear golden cup, and here with us does not bloom until *N. Pseudo-Narcissus* is well nigh past. These Daffodils with white perianths are less satisfactory in one way than the self-coloured or golden kinds. This spring, for example, the cutting east winds completely shrivelled up the perianths of *N. Empress* and *N. Horsfieldi*, the golden crowns of which remained fresh and unscathed for seven or eight days afterwards. Yet when in bloom they are so distinct and lovely that they deserve a cool rich soil and a corner sheltered from rude blasts. I find much confusion regarding Backhouse's seedling *Empress* and *Horsfieldi*. The fact is the latter is plentiful and the former very rare, and the two varieties are so very much alike that mistakes are often made, *Horsfieldi* being very often grown under the name of *Empress*. When I resided close beside Mr. Barr's bulb grounds at Tooting I had ample opportunities of seeing the two varieties growing side by side, and *Empress* was always the finer of the two, that is to say, it had the larger flowers, and that I find to be the case here. *N. Horsfieldi* is very effective, and it has a peculiar history attached to it, which may be interesting. It was a seedling from *N. bicolor*, and was raised by a hard-working member of one of the numerous Lancashire botanical societies, who resided at Besses o' th' Barn, near Manchester—John Horsfield by name. He was very careful in the culture of his new Daffodil, which soon obtained quite a local reputation; and after his death in 1854 the stock of bulbs was disposed of for the benefit of his widow. The sale took place at a meeting of the botanical club to which he belonged at the Swan Inn, Stand Lane, Manchester, and the entire stock of 28 bulbs sold for 1s. 6d.

each. A Mr. Peter Leigh, who became the purchaser of one bulb, grew it, and propagated from it for 18 years, and after selling many had nearly 2000 bulbs of it in 1875, and of these a London nurseryman bought 1000; it is, therefore, now tolerably common in many good gardens. *N. bicolor maximus* I had from Mr. Barr, and it has just gone out of flower with old *bicolor*. Its great characteristic is an exceedingly short tube, so short, indeed, that the perianth segments are set quite near to the ovary in a singular way. *N. major superbus* I do not know, at least by that name.

The lovely white Spanish *N. cernuus* and *N. moschatus* are also susceptible of injury from cutting winds, which soon shrivel them up and destroy their soft pale beauty. *N. cernuus pulcher* was very pleasing here this spring, also the large sulphur Hoop Petticoat (*N. Bulbocodium citrinus*) and the still more delicate *N. triandrus albus*. Mr. Harpur Crewe's pretty little golden and sulphur-tinted *Bulbocodia* from Spain were the first to open their flowers with us here this year in a greenhouse in February, at which time the pale flower of *N. Graellsii* also appeared, all being in small pots placed upon a shelf well up near to the glass. Just as I now write (May 23) *N. Bulbocodium*, *N. poeticus fl.-pl.*, and *N. odoratus* var. *minor* are in bloom on shady borders. A clump of the first-named, some years established, bears at least fifty of its bright golden flowers, and is a pretty object in the morning sunshine.

The Leeds' collection of hybrid kinds has been very fine; they are of nearly all colours and sizes, shading from *N. poeticus* pure and simple, through all the intermediate stages between that plant and *N. montanus* on the one hand, and *N. incomparabilis* on the other. Leeds' forms incline towards *N. montanus*, being white or sulphur-tinted flowers of various sizes, with sulphur cups. Then comes the *Burbidgei* race, approaching *N. poeticus*, but flowering earlier, the perianth segments of some kinds being sulphur or primrose in tint. The *Barri* race comes nearer to *N. incomparabilis*, and contains some fine forms. The *Humei* race leans towards the old type of Daffodil, with just a trace of the *N. incomparabilis* parentage visible in port and structure. This race is distinct, and some forms are of a pleasing sulphur tint. The *Nelsoni* race is also a distinct one; seemingly their origin was *N. incomparabilis* crossed with *N. Macleayi*, towards which latter they lean most, but the flowers are larger, with broad massive segments and clear yellow or orange cups.

Lastly, and less well known, is a race of Daffodil type, having several flowers on a scape. Here we have a tribe which some day will yield us much variety, especially as the Dutch florists have already taken up the thread of origin and improvement in this direction. The varieties at present known are *N. tridymus*, a seedling raised by the late Mr. W. Backhouse and grown by Mr. Barr. *N. Mastersi* is a seedling of Mr. Nelson's, with from two to three flowered scapes, the flowers being white with a sulphur or primrose-tinted cup. Some seedlings from *N. bicolor* with two to three flowers on a scape have been raised from seeds by Messrs. de Graaf, of Leyden, and in their way are very distinct, although showing traces of fasciation, as does also *N. Bulbocodium citrinus*. If pollen of this latter could be used to fertilise any of the true Daffodils, one would expect the progeny to bear two or more flowers on a scape, as this variety seems naturally predisposed that way. It does not appear to be generally known amongst cultivators that when *N. poeticus* and *N. Pseudo-Narcissus* are crossed the progeny is very similar, if not identical, with *N. incomparabilis*. *N. Pseudo-Narcissus* crossed with the *Jonquil*, *N. jonquilla*, produces the *N. odoratus* forms, according to Herbert. I am very fond of *N. odoratus*, especially of the type form or *Campernelle Jonquil* of the Dutch growers. Its bright golden flowers are abundantly produced amongst its tufts of fresh green Rush-like leaves, and are well adapted for cutting. Its bulbs are also useful for forcing, and yield plenty of cut blooms so grown. The double form of *N. odoratus* is also a conspicuous and useful garden flower, as is likewise the smaller but deeper tinted double form of *N. jonquilla*. The single *Jonquil* has a most agreeable perfume, and its elegant flowers are always most welcome for vases and flower glasses, their long stalks being a point in their favour. Of these older kinds, however, their capabilities under good culture are pretty well known, but I anticipate much additional beauty in spring, when the best forms of the *Weardale* and *Longford Bridge Narcissi* become well established. Our collection of them is two years'

planted, that is to say, they have flowered here twice, and some of the flowers this year were very fine. The best here have been *N. Leedsii gloriosus major*, *N. incomparabilis sulphureus* Leedsii, *N. Barri aurantius grandiflorus*, *N. i. albidus expansus*, *N. Leedsii amabilis*, *N. Burbidgei primulinus*, *N. Nelsoni aurantius* (very bold massive flower with rich vermilion cup); *N. Nelsoni major* and *minor* are also very good. When we can boast of these in well established masses they will be a lovely feature in gardens.

That quaint and latest of all the Daffodils, *N. muticus* of Gay, or *N. abscissus*, the "clipt-trunk" Daffodil of Parkinson, has just gone out of flower. *N. Broussoneti* is now growing here, and has made two long narrow glaucous leaves. It is in a pot which stands in a saucer of water on the hot flue of a plant stove. Mr. Miles and Mr. Gumbleton also have it growing, after vainly trying for some time to start the imported bulbs. Next season we may hope to hear of its producing flowers. F. W. B.

SPRING NOTES.

THE fine sunny weather which we have lately enjoyed has brought everything so rapidly forward that we have now a perfect blaze of flowers—spring and summer flowers all at one time. The gardens never were more beautiful than they are now. We have all the *Cypripediums* in flower together, viz., *spectabile*, *pubescens*, *parviflorum*, *candidum*, *Calceolus*, and *acaulis*. I never remember all these to be in bloom at one time before. The most curious one is *candidum*, the pouch of which is a pure white, as if enamelled; the loveliest, *spectabile*, with its rose-coloured pouch. All are quite hardy, the latter having now passed three hard winters in the wood here. *Anemones* have been gloriously beautiful this season, *A. fulgens* having flowered continuously for a long time. We have now a rare one in bloom (*A. sulphurea*) which is exceedingly beautiful. The stem is about 18 in. high, and the pale yellow flower with a deep golden centre 3 in. in diameter. Several interesting *Campanulas* are now in bloom. *C. thyrsoides* is a very quaint plant; rising from a rosette of narrow leaves, its stem is clothed throughout with leaflets, each having a flower-bud nestling at its base; the leaves become smaller and the flower-buds larger towards the top, so that the plant thickens as it ascends. The stem is crowned by a single flower which blooms freely, and the other flowers succeed gradually until the whole is one flower-spike of some 15 in. long. The flowers are of a pale yellow-green, with prominent pistils of primrose-yellow tipped with green. *C. glomerata alba* is a very pretty *Campanula*, having dense tufts of delicate French-white flowers on the tops of its stems, like our own purple *C. glomerata*. This will be a useful plant for bouquets, as the flowers are exceedingly pure and delicate looking. *C. Wanneri* is a dwarf variety with long branching arms, each bearing one large pale lavender-coloured bell-flower. *Corydalis capnoides alba* is new to me and very beautiful; it is sister to *C. luteola*, the flower being of a soft white with deep golden centre. The *Edelweiss* (*Leontopodium alpinum*) has done well with us through the winter; one group of two plants has eight strong flower-stalks this time, and forms a very beautiful object. *Onosma taurica* is a most lovely plant, having rich golden pendulous flowers as rich in colour as that of *Erica Cavendishi*. *Lewisia rediviva* is just coming into bloom, two flowers being expanded out of eight on a tiny plant not 4 in. across. Each flower is nearly 2 in. in diameter, of the palest pink, with a pale golden centre. The foliage gets into a sorry plight as the flowers develop, but this is the nature of the plant, and it is by no means dead when it appears altogether withered, as its name implies. We have some very interesting *Primulas* in bloom. *P. Sieboldi* is the gayest, and has flowered splendidly on the rockeries; even the fine varieties sent out by Mr. Dean are quite hardy if placed amongst the rocks. *P. luteola* has not come through the severe winter in its usual form, all the flowers being poor this season. The same remark applies to *P. rosea*; it has also bloomed very weakly, but the plants seem vigorous enough. *P. capitata* from last year's seedlings is beautifully in bloom. This is quite the most beautiful of the *farinosa* type, with its deep violet rosette of flowers, borne on a slender stalk, the leaves and stalk thickly powdered with white. *P. farinosa* grows on a marshy spot, and is one mass of bloom. It has seeded very freely with us, and the young plants have come up very thickly. *P. scotica* does not thrive so well, all our plants but one having disappeared. The *Trolliuses* are now in grand form; I never saw them finer. We have *T. Fortunei*, *japonicus*, and *asiaticus* of the deep orange varieties, and *napellifolius*, *europæus*, and *giganteus* of the yellow and also the whitish form. It is, however, not white but a very pale primrose. *Aquilegias* promise to be very fine this year. *A. glandulosa jucunda* is the first, having bloomed now steadily for at least a month. *A. cœrulea*, *canadensis*, and the commoner sorts are only just flowering.

Didsbury.

BROCKHURST.

FLORISTS' FLOWERS.

WHEN "A. D." (p. 522) states that the taste for florists' flowers is fast dying out, I suppose he means "in the south of England." It is not the fact here in Lancashire, and, indeed, it is further notorious that on the Tyne side the taste for florist flowers is increasing, and that to so great an extent that the Newcastle-on-Tyne shows for florist flowers are flourishing, and growers are numerous. In this district, I think I am quite safe in asserting that there never were so many growers as at present, and that in all the classes, Auriculas, Polyanthuses, Pinks, Carnations, Tulips, and Chrysanthemums, there are finer shows, better quality, and more exhibitors than there were five years ago. This class of flower is grown by the working man, the hard-handed collier or weaver, who could not find time for a large garden, but who can appreciate and enjoy, as he daily tends, his few pet flowers. He knows all their points, and can discuss the merits of a flower, and give you good reasons for the axioms which guide the judging of each particular variety. It would be a great pity if florist flowers went out of cultivation, but there is no fear of that while such men as Mr. Barlow and the Rev. F. D. Horner have the societies in hand which link all the small cultivators together. The London shows are not fit places for florists' flowers. If you want to see them in proper character come into Lancashire, and the weavers of Middleton will be able to show you some very fine things in that way.—BROCKHURST, *Didsbury*.

— There are hundreds of intelligent persons who find pleasure in cultivating florists' flowers, and I do not think that their pleasure has been marred in the least by anything that has been written against them. As I write I can look upon a bed of 700 Tulips bright in their gorgeous colouring of richest maroon on the clearest yellow, and the various feathered and flamed flowers on a pure white ground; then there are the colours rich and rare of the selfs which will break into flame and feather some day. In what light can florists hold a writer who says (p. 522) that "the Dahlia, Hollyhock, Gladiolus, Carnation, Tulip, Auricula, Pelargonium, and other flowers" have been brought up to a point of excellence that admits of no further advance? We are also told that "the florists have done their work." No, sir; the florists have not done their work. Ask the successors of John Keynes, of Salisbury, whether their work is done in reference to the Dahlia, or Charles Turner, of Slough. The double flowers are being improved, as the columns of THE GARDEN testified last autumn, and we have single ones for those who like them. The Hollyhock is also being improved, though the fell disease has marred its progress. The Gladiolus is being most rapidly improved by James Kelway and Souche's successors; the Carnation by Mr. Dodwell, Dr. Abercrombie, Rev. Charles Fellowes, and others; the Tulip is being improved every year by Samuel Barlow and the Rev. F. D. Horner, and the Auricula and Pelargonium by a host of ardent admirers. When people have made up their minds to believe that there is no improvement, but rather that florists are now spoiling whatever they touch, perhaps it is best to "leave them alone in their glory." Another delusion is, "That florists throw away all the beautiful things and retain only those that have arbitrary points." Those who say so write without knowledge. Mr. Barlow exhibited a group of rejected seedling Auriculas at South Kensington on the 19th April, and they were strongly condemned by a writer in THE GARDEN as "bloodless things." Let any reader of THE GARDEN who fancies that the best Auriculas are thrown away and that the bad ones are kept come to Loxford Hall at the time when our seedlings are in flower, and I will allow him to select and carry away a dozen or two on condition that he grows and exhibits them at the Auricula show the following season, with the view of pointing out in what way they are superior to those selected according to the so-called "arbitrary rules." There are some who believe that no further progress can be made in the improvement of the Potato. Does "A. D." admit that? No; he knows that the Potato, good as it is, is still capable of improvement. In like manner, fanciers of Auriculas are still trying to raise a green-edged and white-edged Auricula equal to Headly's beautiful George Lightbody, a flower which it was thought could not be surpassed in its class; but the judges at South Kensington thought otherwise when they awarded the palm to a grey-edge raised at Loxford and named Mabel.

As to varieties of the Auricula, there has been a great improvement during the past few years; so much so, that Mr. Horner was constrained to remark to me, "Surely, Douglas, the old growers had not gone about their work in the right way, or we could not have made such improvements in so short a time," and this was the thought in my own mind while looking at his flowers. The varieties exhibited at South Kensington were all described in THE GARDEN. On the Tuesday following the northern exhibition was held at Manchester, and at a meeting held afterwards at the Bull's Head it was decided to give two first-class certificates, one to Mr. Thomas Mellor, for Auricula

Reliance, a white-edged flower in the way of Smiling Beauty, but a decided improvement on it, and another to Mr. Pohlman, of Halifax, for a fine dark self named Brunette, a kind almost black, very circular, smooth, and with colours well proportioned. Mr. Turner's white-edged Auricula Mrs. N. Brown is also a very fine variety, pure, and the colours well proportioned. This and a grey-edged variety named Hilda, from Loxford Hall, were exhibited at the Royal Botanic Society's show, and gained first-class certificates.

As regards culture, we prefer to do our repotting at once, but have to do it when we can; at present we are pretty well full of work, and for a time the Auriculas must stand aside. It is important that small offsets of choice varieties should not be neglected. Let them be potted on as they require it, and even small plants now will make good flowering ones for next year. The same with seedlings; the small plants which vegetated during the months of February and March must not be allowed to stand still for want of repotting. The plants do not like much sun at this season, and they object to shade; they ought to have the diffused light which may be obtained by placing them on the north side of a wall or high fence, where they get sun in the morning and afternoon, and receive shade during the hottest part of the day.

J. DOUGLAS.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Herbaceous Bedding.—The great bedding-out season will now be in full swing, and the tender nurslings that only by the most earnest watchfulness escaped last winter, after considerable expense for firing and attendance, will be aired out for a couple of months, to be again returned to their winter quarters, and waited on for three-fourths of the year again. Might I suggest that growers would be doing good service by pointing out, from time to time, bedding combinations of herbaceous and hardy perennials that they have seen or found effective, and that required neither winter quarters, fire heat, constant care, nor solicitous nursing, and that were yet showy, bright, and cheerful from January to December? With limited facilities I have had some borders and upwards of twenty beds occupied thus, and more or less brilliant the whole year round, so arranged as that one follows the other in succession, and, unlike ordinary bedding-out, I can cut a bouquet for a visitor without injury at all times. The field to select from is so large that it must be a matter of taste, and will be different, possibly, every year with those who love variety. I have found a bed with a centre of bulbs, Crocuses and Tulips, alternately down the centre, then Anemone coronaria for succession, then Cheiranthus aureus, and an outside edging of Veronica gentianoides variegata, showy since January, and still more so now. The bulbs bloomed in February and March, then the Anemones until now, and the two last are now taking up the tale. The bulbs are lifted, a top-dressing applied, and their place filled up by early Chrysanthemum Asters, which will follow, to be succeeded in autumn by some biennial, probably a Campanula, for the following year's blooming. An adjoining bed has Auricula-eyed Sweet Williams down the centre, then alpine Auriculas, Alyssum saxatile, Monarda didyma, and lastly, the Mossy Saxifrage. This was furnished the whole year, and is so still. You can have exceedingly showy beds with single varieties of double Daisies or, as I have now, of Primula japonica, that tax hardly one idle hour, certainly require no nursing, and even when not in bloom are furnishing.—W. J. M., *Clonmel*.

Ranunculus Ficaria.—This Ranunculus is well worthy of more careful cultivation than it receives. In our wild garden we have a moist part where single roots of it have been planted out, and these have formed clumps more than 1 ft. across, bearing hundreds of large, golden, starry flowers. We have also a double variety quite as double and with as large flowers as the Ranunculus acris fl.-pl. It is a charming flower. We have also a pure white variety which is worth notice. All these varieties were found wild in the Cheshire meadows, and doubtless may be found in most districts if sought after.—BROCKHURST, *Didsbury*.

Antirrhinums from Seed.—If any garden flower should be universally grown surely it is the Antirrhinum. As a seed producer it is at the head of biennials; indeed, so freely does it seed, that if not gathered the plants will cast their own all around and produce a vast number of seedlings without more ado. But that is not treating the Antirrhinum as a garden flower, and if it were thus left to its own devices we know what would follow: the vast accumulation of seedling plants would soon choke and starve each other, and thus they would presently deteriorate and die. But there is little need for this haphazard sort of cultivation. A pinch of seed sown almost anywhere during the spring or summer will give hundreds of plants, and if these be but dibbled out where they may remain unmolested, all is done for that sowing that is needful. Though practically a bien-

nial, the Antirrhinum is not truly a hardy one, and it is better treated as a hardy annual—that is, sow seed in September to produce plants to stand the winter for early summer blooming, and sow again early in spring under glass to get a stock of autumn-blooming plants. Although it is the old plants which chiefly suffer, yet even young plants do not always escape; but a few hundred plants will not occupy much space for the winter in a frame or even under hand-lights, where they will be quite safe. These make strong plants to go out in April, and they will bloom finely towards the middle of June. Spring-sown plants continue to bloom right up to the end of October. Although there are named varieties that have specially good marking, seedlings of a good strain give flowers hardly less beautiful, whilst the variety is much greater. The Tom Thumb section shows the most varied forms and markings, and the plants are stout and compact.—A. D.

ALPINE SILENES.

THESE constitute a very extensive genus in northern, temperate, and arctic regions, including some of our most beautiful Alpine flowers. There is the Cushion Pink (*Silene acaulis*), tufted into dwarf, light green masses, like a wide-spreading Moss, enduring the fiercest storms, snows, and arctic cold of numerous mountain climes in northern regions of the globe, from the White Mountains of New Hampshire to the Pic du Midi in the Pyrenees, carpeting among the rest the higher mountains of Britain and Ireland; there is the Alpine Catchfly (*S. alpestris*), with its close carpet of shining leaves, and numerous, pure white, star-like flowers in early summer; there is the rare and showy *Silene Elizabethæ*, a remarkably beautiful, and as yet very rare, Alpine plant from the Tyrol and North Italy, quite distinct from all others, the flowers looking more like those of a handsome but diminutive *Clarkia* than those of the commonly-grown *Silenes*; there is, too, the Pigmy Catchfly (*Silene Pumilio*), a rare and interesting species from the Tyrol, resembling the Cushion Pink of our own mountains in its dwarf, firm tufts of shining green leaves, and bearing much larger and handsomer rose-coloured flowers scarcely more than an inch above the flat mass of leaves, so that the whole plant seldom attains a height of more than between 2 in. or 3 in.; and, lastly, among the finest of the showy dwarf species, we have the Caucasian *Silene Schaftæ*. All the Alpine *Silenes* are of easy culture; rare kinds, however, like *S. Elizabethæ* and *S. Pumilio*, should be carefully treated till more plentiful. They should be planted in deep sandy loam on a well-drained and thoroughly exposed spot, sufficiently moist in summer, facing the south, a few



Silene rupestris.

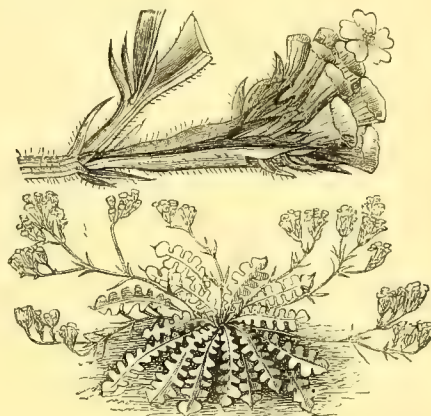
stones being placed round the necks of the young plants, to keep them firm and prevent evaporation. Afterwards they will take care of themselves.

W. G.

STATICE SINUATA.

THE three or four kinds of Thrift that require to be treated as half-hardy annuals do not appear to be much appreciated, though they are even prettier than some of the perennial kinds. *S. sinuata* is one of the best, producing, as it does, long sprays of showy

purple and white flowers particularly suitable for cutting purposes more especially for the embellishment of vases in winter, as they come under the definition of everlasting flowers owing to their dry and scarioso character. The plant grows about 1 ft. high, and is of spreading growth, as represented in the accompanying



Statice sinuata.

illustration. *S. Thouini* is similar, but the flowers are blue and white, while one called *S. Bondueli* has pretty golden-yellow blossoms. If protected, these three kinds assume a biennial character, and they are certainly worthy of such treatment, as they flower so much finer in the second than in the first year. If intended for flowering the second year the seeds should be sown in autumn of the same year, in early spring in a gentle heat.

W. G.

GLOBE FLOWERS.

SINCE sending some Globe Flowers, which I called European Asiatic, and American, to the editor of THE GARDEN, last week, I have visited Kew, and some of the principal nursery gardens, and two or three private gardens near London, and have particularly noticed the Globe Flowers and their labels, and my ideas about them have become somewhat confused, both by the absence of unanimity in different gardens, as to which is the European and which the Asiatic Globe Flower, and also by the large number of names which share between them a very small number of distinct forms and colours. *Trollius europæus*, the type of the genus, is a plant I never found wild in Britain, though it is not uncommon in North Wales and the lake district, and I should feel very much obliged to any one who would send me a rooted piece of it from a native habitat. I believe, however, that the flower is of a clear light yellow colour, scarcely opening its much-incurved petals sufficiently to show anything of the inside, and having the shape of much-flattened spheroid. It is also less tall than the other varieties.

Another form, which I call *T. americanus* or *giganteus*, grows twice as tall, reaching often a height of 3 ft., bears rounder and more open flowers, which are sometimes, in good soils and seasons, nearly 3 in. in diameter. The flowers of *asiaticus* are not so large, but much more open, and are distinguished by the clear orange colour of the anthers. Besides these three, all of which I have had in my garden for at least twenty-five years, I have only seen two others which are decidedly distinct in appearance and colour. One, which is called *albus*, *albidus*, or *pallidus*, has flowers of a light straw colour, and seems to belong to *europæus*. The other is certainly the most beautiful of the Globe Flowers, and generally bears the name of *japonicus flore-pleno* or *Fortunei*. The flower is large and round, and has a double row of petals of a bright orange colour, with anthers to match, but though hardy in winter, it is not hardy when in flower, and requires a sheltered situation. It was flowering beautifully last week in Mr. Ware's nursery.

All the Globe Flowers like a strong, rich, retentive soil, away from the shade of trees. If not divided and moved at least once in three years, or well fed at the surface, they exhaust the soil, and the flowers deteriorate. They will also repay the trouble of a good watering. They want no other care. Besides the five varieties

enumerated, there are a few others differing in little except the outline of the leaf and the size of the flower.

Edge Hall, Malpas.

C. WOLLEY DOD.

THE ROSE GARDEN.

CALIFORNIA ROSES.

THE following essay, according to the *Pacific Rural Press*, was read at the last meeting of the California State Horticultural Society by Mr. Stratton, of Petaluma:—

Our Pioneer Rosarians.—Mr. Palmer, of Alameda, imported the first collection of Roses to our coasts in 1851. These he planted near the Mission Dolores, where they thrived, and many of these original plants are still alive. Some of them were sold for \$37.50 each. M. Louis Prevost, a nurseryman from France, arrived about the same time, a little later in the year, and brought a collection of several hundred sorts. These were taken to San Jose. Messrs. Pallett and Fox came still later in the year with fine collections, and in 1852 Rosebuds were sold at \$5 each, button-hole bouquets at \$10, \$20, and even \$30 each, while bouquets of buds often commanded \$100. These were fabulous prices.

Cultivation and Soils.—Our Roses thrive everywhere alike, on mountain, hill, or dale. Thorough cultivation, however, must be given by those who would have perfection; hence a liberal supply of food must be yearly afforded. Ashes and lime are excellent fertilisers for Roses; soot and soap-suds are invaluable for all light soils, while for others nothing excels in value well-rotted stable manure. The preparation of manure for Roses should be thorough. Manure as usually obtained is nearly worthless. After it has passed the first fermentation its most valued nutriment for plant life is lost. It should therefore be obtained absolutely fresh and carefully composted. The operation is simple. First, spread the manure on the ground, say 12 inches deep, in any desired form, then cover with sandy loam, wet thoroughly; when another load can be obtained spread it over the last, and cover again with soil, and repeat layer upon layer, soil and manure alternately, always making each layer a little smaller than the last, so that the sides of the pile will be a little sloping. A regular moisture should be maintained, and in a few months the whole should be carefully worked over. This is plant food, rich in all the necessary elements and when liberally applied the results are most satisfactory. Nor are we compelled to stimulate with guano, like our European friends to obtain their exhibition flowers, and, in addition, water with liquid manure to give colour, size, and vigour. Our genial skies impart that which no human wit can devise—all the essential elements of success, if we but assist Nature with practical common sense culture.

Stocks for Grafting.—It is generally conceded that heavy soils give the best results in Rose culture, vigour to the plant, size, colour, and delicate pencilling of shading. Yet there are many varieties that are sadly lacking in constitutional vigour; these we graft on other sorts. I am aware of the antagonistic views of many horticulturists to worked Roses, yet they are unworthy of mention when we consider the great improvements that take place in many varieties of Roses by being grafted or budded on others of known vigour and hardiness. *Maréchal Niel* is worthless on its own roots, and equally so is the *Perle de Lyon*, yet when grafted on the *Manetti* they at once become our most beautiful varieties. *Eliza Savage* lacks sadly in vigour of growth, yet when grown on the *Castilian* Rose, we have a bud voluptuous in odour and appearance, excelled by no white Rose in the long catalogue of varieties grown. Another great value in worked Roses is we can select stocks for wet or dry soils. The *Manetti* will thrive in a quagmire, and luxuriates in positions where the greater number of Tea Roses will perish. The *Castilian*, on the contrary, is more suitable for dry soils. Naturally a deep feeder, its roots penetrate deeply for sub-soil moisture. In these two varieties we have most valuable stocks to aid us. One objection, however, to these Roses for stocks is their disposition to throw out suckers, but these can be kept in subjection, another feature of value these grafted Roses possess. Mildew seriously affects many of our finest varieties when grown on their own roots, but by a judicious selection of stocks we impart vigour and cure the disease.

Mildew is a fungus which spreads through atmospheric influences and through contagion. Select a diseased leaf of any Rose on which mildew is perfectly developed, and place a tin pan or any other airtight vessel in a moderately cool, shady position. Now procure leaves, old and young, of any hardy, healthy Rose plant, and place these under the pan or bell-glass, not so that they will touch each other, and in 24 hours the disease will have spread to every leaf. Again repeat the experiment with a fresh vessel, and when all is

complete pour a few drops of carbolic acid on a bit of wood, that its evaporation may be gradual, and no spread of the disease will commence till the earth has absorbed all the strength of the acid. Again, select a wild diseased specimen of say the well-known *Géant des Batailles*, procure a plant of the *Manetti*, a stock that is ever free from this disease under all circumstances when standing alone; place the two plants close together so that their foliage is interwoven, and in a very short time the *Manetti* will have become a mass of disease. Again, the leaves of Apple trees, Locust Blue Gum, Poplar, and Maple will all mildew if their branches hang in contact with a diseased Rose bush. First, as a preventive, thorough culture is indispensable; keep the plants in full vigour, thin out the tangled masses of foliage that there may be a free circulation of air, and do not allow too free flowering. It is an unfortunate fact that nearly every Rose we receive from the Eastern States shows traces of this disease to a greater or less extent. These Roses are nearly all grown in their earlier state under glass, and in this confined atmosphere, one diseased plant carries destruction to all, and our first effort is directed towards eradicating the disease. We at once plant out of doors, and take from the young plant five or six buds, if possible. These we graft two on each *Manetti*, *Castilian*, and *Eglantine* stocks. If there is any blood poisoning in the plant it speedily develops either on the parent or the grafted stocks, and we are at once able to determine which are the most suitable for the variety. If it mildews on all but one, or any one, the most healthy one is marked, the balance reserved for experiment, and on its first appearance we syringe freely with carbolic acid and blue-stone in very weak solution. In most cases this keeps it in subjection, yet we daily go over our plants, cut off all leaves that show any trace of the fungus, and burn them.

Propagation.—It would seem that this is but a minor point, and yet it is one of the most important. Grand as has been the results in the past, on the future depends the high standard of excellence, by a careful and judicious selection of wood to perpetuate and improve still further existing varieties. Some sorts produce uniformly fine flowers, others never except on a few laterals. A *Bon Silene* or a *Safrano* is a *Bon Silene* or *Safrano* the world over; they are strong types of Teas and easily recognised, yet in these two sorts we find branches or entire bushes that give far finer results than others. Again, take the more hardy section of Roses, the Hybrid Perpetuals; the delicate tinting and vigour of growth varies in individual plants in the same variety; therefore in selecting wood for young plants, the perfect flowering laterals or plants should always be used or it will rapidly degenerate. The ease with which we propagate our Roses is of incalculable value. By hard cuttings in autumn, planted permanently where we wish them to mature, by soft cuttings in spring, summer, or autumn, they may be increased with almost the rapidity of the *Fuchsia*. The Moss, so difficult of increase in the Atlantic States, with us is as easy to manage as a *Lamarque*, and there is no reason why in the near future California may not supply our nation with vigorous healthy plants, perfect types of perfection grown in the open air, and not stimulated nor debilitated by hot-house growth and culture.

Pruning.—Judicious pruning is one of the main elements of success. The Hybrid Perpetuals should be pruned in autumn by reducing the top nearly one-half, especially cutting off all weak shoots, or those showing any disposition to disease. In spring, when budding, side branches that show a tendency to form a dense head should be rubbed off, and excessive bud clusters should be partly removed. After the first flowering is over, cut back one-fourth, observing to thin out carefully as before. Manure freely at this time, as Roses are gross feeders, and amply repay any act of kindness in this way. The Teas, or ever-blooming class, especially those of slender growth, rebel against excessive cutting. At the most, they can only be thinned out very carefully; if done in excess the plant is seriously debilitated. The head should be kept well open by periodical thinning out, thus in a measure obviating excessive cutting in autumn or spring. If heavy manuring is essential to the former class, it is decidedly more so to this delicate race. They need the highest culture to maintain their fine standard of elegance.

Window Culture.—Roses for window culture must of a necessity consist of the delicate growing kinds. Hardy, robust sorts are too coarse to thrive in the atmosphere of the house. Well established plants grown out of doors, properly potted, will do well if not over-watered, and a free admission of fresh air be not denied them. Green fly may appear, but it may be quickly eradicated. Sprinkle the foliage freely, then dust on fine snuff where the insects appear. Fumigation with tobacco is practised by many, but is wholly unnecessary. Care should be used not to sour the soil by over-watering. This may be quickly detected by the musty smell, and if in bad condition, the plant should be removed at once, or placed where the air will circulate freely around it. Water must now be withheld until the plant shows signs of suffering for moisture.

Roses in Beds.—The prevailing method of crowding Roses when massing them is delusive. The strong growing sorts should be planted fully 6 ft. apart, and the delicate growing varieties not less than 4 ft. A very prominent Eastern firm of Rose growers tell us in their spring catalogue: "A bed of 12 ft. in diameter will hold 150 Roses nicely." It may be of the very small, young plants, but what of them in their maturity?—a tangled mass of rubbish. Roses are beautiful in their individuality; crowding is not permissible. If planted thickly they shade the ground in winter to such an extent that during our damp, cloudy weather the soil sours, and disease is the result.

NOTES ON ROSES.

Marechal Niel Out-of-doors.—I gathered our first Rose from the open air to-day (May 24), and such a Rose—weighed, I should think, nearly a quarter of a pound—a real solid massive half opened cup of gold. It was gathered from a dwarf wall supporting one of our hot-houses. There is but one more Rose and the wreck of a plant, while fine flowering branches over 20 ft. long are dead. However, two fine shoots have sprung up from the roots. Another companion tree has six buds coming. Last year even, bad as that was, I should think we cut 150 fine flowers from these two *Maréchal Niels*. All our standard *Maréchal Niels* are dead, while fine plants on walls in all aspects are almost as cruelly maimed as the two wrecks already described. The loss will be most severely felt now, as there is no Rose, not even *Gloire de Dijon* that so well bridges over the hiatus between indoor and out-of-door Roses that so often occurs about the end of May and the first week in June as the *Maréchal Niel*. We have put in almost every spray of our indoor *Maréchal Niels* as cuttings, and intend to plant them out as soon as rooted in rich soil to grow into bulk by the autumn, so as thus to try and redeem our losses. But nothing can give us our usual supply of *Maréchal Niel* Roses this spring.

Niphetos Under Glass and in the Open.—This fine globular white Rose has such exquisite form and substance under glass, that we were induced to plant the major portion of a dwarf south wall with it on its own roots last October. The plants, which were all well rooted cuttings, were carefully mulched as well as thatched over with Spruce boughs. Notwithstanding these precautions, they have been hit so hard that several are killed outright, and the others are so crippled that it will take them half the season to recover. The best place for *Niphetos* is doubtless under glass in a cool or warm conservatory, or even plant stove, for the *Niphetos* bears heat almost better than any other Rose. The flowers vary very much in size, and the smaller or medium-sized ones are at once the more elegant and more useful. Few Roses are better for bouquet making, the dress, or the hair, and the substance is so good that hardly any Rose equals or excels *Niphetos* in staying properties. The *Niphetos* is also without rival for the filling of vases, baskets, &c., for drawing, sitting, or dining-room.

Moving Roses in June.—Leave the Roses (p. 536) as they are till the time of removal—the latter end of June. They will have flowered, and their young shoots be in a semi-ripe state. Then cut back the current year's shoots to within two or three eyes of the old wood. Be careful in taking up to preserve all the roots intact, if possible, and swathe them up carefully in damp litter or Moss. In packing see that neither the young wood nor the leaves are bruised. Sprinkle overhead before matting over. Unpack with equal care, and plant immediately, watering the plants home, and sprinkling overhead several times a day, until the plants are established. If shaded with a few boughs or sheets of straw or other paper for a week or so all the better. Success may be said to depend on the preservation of the leaves green as long as possible. Thus transplanted and cared for afterwards, "J. H.'s" Roses may even carry off prizes in the summer of 1882.

Banksian Roses.—I am glad to notice that these are not quite killed here. As usual, the yellow has escaped better than the white; Fortune's variety, or larger white is more tender again than the common white, and, by-the-by, is not so good. Every enlargement of the Banksian Rose tends to spoil it. It is its size, habit, and unique character that gives it value. The yellow is now beginning to flower. It is always a fortnight or three weeks earlier than the white. Does any reader of THE GARDEN grow the single Banksians? and are they more hardy, earlier, or later than the double ones? I should very much like to try them.—D. T. FISH.

Malt Dust for Roses.—Canon Hole in his book about Roses eulogises this material. I therefore wrote for some to a brewery, and spoke of it as the dust which falls through the malt-kiln plates after or during (I presume) the roasting process. My friend at the brewery says their dust is not that, but that which clings to the malt

and is really the rootlet. Being, therefore, quite in the dark in this matter, I appeal to your readers to settle my doubts, as I want the right article which is to be used with horse droppings and liquid manure as a top dressing this month. I am also in doubt as to the proper quantity to apply.—C. Y.

The Best Rose of the Last Two Seasons.—I need hardly say that there can be no two opinions as to the giving the palm to A. K. Williams; as a Rose it is perfection; free in blooming, exquisite in form, and in colour unsurpassed. There is always a fault somewhere to the critical observer, and especially to the fastidious, and if I were to pick a fault in this lovely Rose I should regret that it had not a better constitution. Other Roses there are of great merit of late introduction, but all fade in the light of a bloom of A. K. Williams.—W. W. FRETtingham, Beeston, Notts.

Rose La Boule d'Or.—How can I make the flowers of this Rose open properly? I have a large bush of it covered with buds, but they nearly all form a hard knob in the centre. I should be glad also to know the name of the Rose. [The Rose in question, *La Boule d'Or*, is a most difficult one to bloom well. Mr. Cant is the only grower I know who has shown this Rose well, and his stand of it at the Crystal Palace a year or two ago was the most beautiful I ever saw. I believe that he blooms this Rose under glass, and I think that is the only way in which it can be grown in perfection.—R. BAKER, Heavitree.]

LOWFIELD NURSERIES, CRAWLEY.

THESE nurseries, held by Messrs. Cheal & Sons, and situated in one of the pleasantest parts of Sussex, are devoted chiefly to the culture of trees, shrubs, and fruit trees. As in all other tree nurseries, the effects of the winter are sufficiently obvious, not only in the case of doubtfully hardy subjects, but also in that of those that are really hardy in the ordinary sense of the term. In these nurseries, which occupy a large area, there is a remarkable diversity of soil as regards consistency, and it is interesting to observe how the different conditions have affected certain trees and shrubs, and particularly Conifers, those on the lighter being much less damaged than those on the heavier parts of the grounds. A leading feature in this nursery is the

Cordon-trained Fruit Trees. No one who has seen cordon fruit training carried out as it is here can question its great value, and particularly where space is limited. These remarks more particularly apply to simple horizontal and vertical cordons, both excellent; the former having a single stem bent at right angles and carried horizontally along near walls or otherwise, the latter single stems placed from 1 ft. to 2 ft. apart against a wall, and fastened either vertically or slightly obliquely, a plan by which a large amount of wall space may be quickly covered, and if need be with a great variety of sorts. The horizontal cordons are suitable for either large or small gardens, and have a particularly neat appearance when placed parallel with the walls and a short distance from them. As to the question of productiveness and the quality of the fruit, the remarkable examples that have been from time to time exhibited in London and elsewhere conclusively prove that in this respect the plan is quite equal to trees grown on any other system. One other mode of training in the Lowfield Nurseries seems to us uncommonly good, and one that ought to be more generally practised. It is the training of cordons over arched trellises so as to meet at the top and form a completely covered archway, yet not so thick but that fruit may be ripened on the inner side as well as the outer. Such a mode has a pleasing effect in gardens, being out of the general run of fruit tree training. The broad plantations of Apple trees on the cordon system sufficiently convince one of the rising popularity of this system. Of both Apples and Pears a very numerous collection is grown, and amongst the former are some seedling varieties that are said to be a decided advance on older kinds. Other fruits, too, are grown on a proportionally large scale, but we observed little to note with regard to them except that the losses from frost are numerous.

Flowering Shrubs we observed in great variety, and among the most attractive was the beautiful *Pyrus Malus floribunda*. This, though when in bloom like the Apple, is totally distinct in habit and mode of growth from any other tree or shrub, and, above all, not one is so beautiful in the bud stage, the deep carmine tint of half-opened blossoms being, in fact, more attractive than when expanded. Another attractive shrub of sterling merit is *Pyrus Maulei*, the colour of which is almost unmatchable, the peculiar orange-red hue rendering the blossoms very ornamental, and what is more they are succeeded by clusters of handsome fruits of a rich golden tint, heavily streaked and suffused with crimson. The Scarlet-berried Elder is a shrub not often met with in quantity

even in nurseries; we were therefore pleased to see so much of it here, as it is a proof that there is an awakening demand for it. So distinct is this Elder from any other, and particularly in autumn when furnished with its dense cluster of bright red berries, that it is somewhat surprising that it is not commoner than it is. The young growth, too, just now gives the plants an interesting appearance, being deep purple, and the leaflets light and elegant. The Silvery Kerria, or *K. japonica variegata*, is perfectly hardy here, and thrives well in the open border. Being now wreathed with golden yellow blossoms and prettily variegated foliage, it is very effective, and it retains its colour well throughout the season. The green leaved form is not nearly so attractive. Among shrubs of doubtful hardiness we noticed that *Veronica Traversi*, a New Zealand Speedwell, had been severely injured, likewise *Phytolacca serrulata*, while such as *Diplopappus chrysophyllus*, or *Cassinia fulvida*, as it should be more correctly called, was scarcely hurt, and the same remarks apply to the

Japanese Maples, the opening leaves of which are now assuming a bright aspect, varying from deep crimson to the brightest tones of green. These, both in leaf and habit, bestow upon shrubberies so much additional interest, that they ought to be more widely known than they seem to be at present. Some consider them tender, but in the southern half of this country and all Ireland they have withstood our late severe winters unhurt, and if a shrub can withstand such intense cold as that which we have experienced, it surely ought to be ranked as hardy. They should, however, be protected against the biting winds in spring, when the young foliage is tender, and this might be easily effected by placing denser growing shrubs, so as to break the force of the wind.

Myrobella or Cherry Plum (*Prunus Myrobalana*).—This has of late years been employed as a hedge plant, a purpose for which it is here grown extensively. It is admirably adapted for hedges on account of its dense and rapid growth, more rapid even than Quick and, being beset with strong sharp thorns, it is superior to it as a protective hedge. It is deciduous, but retains its bright green foliage till late in the autumn. Those who have employed it speak highly of it, and we have lately seen some thick hedges that have been but a comparatively short time in forming.

Among Laurels grown here we noticed one called *L. rotundifolia*, which seems decidedly the best of all on account of its very distinct foliage and fine habit. The leaves are much broader than in the ordinary kinds, and are rounded at the upper half; hence its name. It is, moreover, hardier than all the rest, at least so far as we could judge in this nursery, as it is much less injured than either the Caucasian or the common. Many other shrubs were severely injured from last winter's cold, and it is interesting to observe the relative hardiness of the various kinds. Evergreens have, of course, as elsewhere, suffered much, but a few kinds are deserving of mention on account of their hardiness. Among these are *Diplopappus chrysophyllus*, or more correctly *Cassinia fulvida*, a neat-growing New Zealand shrub, with small leaves having a golden under surface, which gives it a rather pretty effect. *Raphiolepis ovata* has withstood the winter well, and a handsome shrub it is in localities where it will stand uninjured. *Photinia serrulata*, another Rosaceous shrub, stands better here in the open than it usually does, but even here it has been injured, and can only be recommended for sheltered positions or for the more favourable localities. The handsome *Veronica Traversi*, a New Zealand Shrubby Speedwell, has been irrecoverably injured, in many cases fine specimens having been completely cut down. Conifers are grown on a large scale in great variety, and there are two or three new variegated forms that have originated here, but it is premature to more than allude to them, as none of them as yet show their proper character. Another important feature in this nursery is the collection of

Melons and Cucumbers, to which particular attention is paid, especially as regards the raising of new varieties. No fewer than thirty varieties of Melons are under trial; not ordinary garden varieties which lately have been so common, but foreign kinds from Egypt, Cabul, India, South Europe, and a host of other places, and it is expected that some will prove quite different from the ordinary cultivated kinds. Some of the kinds that originated here last year were decided acquisitions, as was proved by the recognition that was accorded them at exhibitions. Among a large number of sorts of Cucumbers were several new kinds, such as Cheal's Prolific, Crawley Rival, and white Duke

of Edinburgh, all of which are highly spoken of. The West Indian Gherkin is not only useful for pickling, &c., but it forms an ornamental plant when grown in pots, as the singular small oval fruits droop gracefully on slender stalks in profusion. One other novelty is worthy of note, and that is the "Mexican" Potato, which has been introduced by Captain Mayne Reid from Mexico, and the introducer claims for it the property of being a first-rate kind not subject to the ordinary Potato disease, and a prolific cropper. It is a handsome tuber of medium size; one form has a yellowish flesh and pale skin, the other a white flesh and pinkish skin. As to its cooking quality, we can testify to its being first rate, as the tubers are perfectly mealy and of good flavour. W. G.

THE GARDEN FLORA.

PLATE CCLXXXVII.—VANDA LAMELLATA BOXALLI

NEW Orchids of sterling merit, especially those of the East Indian section, but seldom make their appearance, therefore the plant which we now figure is specially welcome, being not only a showy kind, but a free grower, and by no means a shy flowerer. As regards beauty, it surpassed the expectations of those who awaited its flowering (notwithstanding the good accounts given of it by the collector), probably owing to the typical kind being such an unattractive plant, its flowers not having a particle of bright colour about them. The plate is a faithful representation of the plant as it flowered in Sir Trevor Lawrence's collection at Burford Lodge, Dorking, last year, except that the colour of the lip is somewhat brighter, our artist being assisted in that respect by some remarkably highly-coloured flowers, for which we are indebted to Dr. Paterson, Bridge of Allan. It was discovered, we believe, by Mr. Boxall, when collecting Orchids for Messrs. Hugh Low & Co., of Clapton. Lately it has been imported in large quantities in first-rate condition, and it is by no means the least important among the numerous new Orchids that continually emanate from the Clapton Nurseries.

Culture and Position.—We append a few remarks on the culture of this Orchid from Mr. Spyers of Burford Lodge, who grows it very successfully: This charming Orchid, one of Mr. Low's introductions, is quite worthy of its collector's name. Mr. Boxall imported many forms of it, some not far removed from the old *V. lamellata*, while others, like the one here represented, are so superior to it and so distinct, that it is really difficult, except to a botanist, to trace the old tawny *V. lamellata* in them. *V. lamellata* was never a favourite with Orchid growers, and consequently often had to put up with very indifferent treatment. In spite of this, however, it managed to grow tolerably well, and flower every year. There is no reason to doubt that Mr. Boxall's plant possesses the same hardy constitution; still, so short a time has it been in the hands of cultivators, that any attempt to lay down strict rules as regards its culture would be a worthless venture. Our plant is apparently doing thoroughly well, potted in crocks and charcoal and surfaced with Sphagnum. It is associated with and receives the same treatment as such well-known plants as *Vanda Lowi*, *Aerides quinquevulnerum*, *A. virens*, and *Saccolabium* of the *guttatum* and *Blumei* section. The flowers of this Orchid last many weeks in perfection during the winter months.

ORCHIDS.

HARDY CYPRIPEDIUMS.

THESE are now at their best here. *C. Calceolus* is fine in several situations, viz., in pots, under the shade of small Peach trees, under a glazed wall, on open rockwork, between large stones in well decayed leaf soil, and also in the open under fruit trees in stiff loam. Other species from N. America, though not so long and well established as *Calceolus*, are nevertheless blooming freely in this their first season; they have wintered well with me and appear to be perfectly hardy. Having tried for a few years to grow hardy Orchids, I have frequently proved the difficulty of even keeping many species from year to year, especially in pots and frames where their fine foliage and flowers are seen to most advantage. Without pretending to give instructions as to how these plants should be grown, I may say in what way I have hitherto been most successful. They were potted



VANDA LAMELLATA BOYALLI

in a mixture of chopped Sphagnum, peat, leaf-soil, and sandy loam, equal parts, whilst in a dormant condition. After several waterings and the compost settled, the pots were filled up again with chopped Sphagnum held on by a few pebbles, or a sprinkling of loam, then they were plunged in a cold frame. This coating of Moss has prevented the blackening of the young growths by frost. I used to have many damp off at the collar, but I have found it a good plan

brighter yellow lip, and somewhat taller growth than our native Lady's Slipper; the petals also are much longer and twisted in a pleasing manner. *C. candidum* is very distinct, having a chubby white lip, more enfolded than the above species by its short green petals. *C. arietinum*, or Ram's-head Lady's Slipper, is the most distinct of all those which I grow. The flowers are very small indeed, as, in fact, is the whole plant in all its parts. It grows 8 in. or 9 in. high; the

stems are very slender, with foliage small and spare, and each stem bears but one flower, as aromatic in perfume as that of a well-ripened Peach. Of the noble Lady's Slipper, *C. spectabile*, I can only at present say that it is pushing strong healthy growths in the open rockwork, and that its hardiness is unquestionable. Mine, during the last two winters, has not had any protection whatever. I fear I shall fail to flower *C. montanum*; indeed, it grows but feebly.

JOHN WOOD.

Woodville House, Kirkstall.

ANGRÆCUM KOTSCHYI.

THIS rare East African Orchid is remarkable even among *Angræcums* for the curious structure of its ivory-white flowers, which are produced in pendulous many-flowered racemes, each flower having a singular reddish spur many inches in length. It was introduced by Messrs. Veitch, through Dr. Kirk, Her Majesty's Consul at Zanzibar. Prof. Reichenbach considers it a dangerous rival to even *A. Ellisi* itself. The firm ivory-white flowers look much like those of *A. Ellisi*, but the long, often very curiously twisted, spur is different, and most remarkable on account of its length. A first class certificate was awarded it by the Royal Horticultural Society on the occasion of its being first exhibited in October last year.

Sobralia macrantha nana.

—The display of this scarce Orchid in the York Nurseries just now is charming. Some small plants of it, even with stems only from 10 in. to 12 in. high, are flowering freely. The blossoms are of a soft, brilliant light purple, with white centre, the lip alone measuring 3 in. or more across. One flower measured was more than 8 in. from the base of the lip to the apex of the upper sepal. We learn that the plants of this variety were sent direct to the firm by their collector from Mexico. It seems to be of easy culture, requiring light and plenty of water at all times during the growing season.

Geometrical Bedding. —

At last a use has been found for this pseudo-gardening. Its enemies will be confounded, its friends astonished, and Willing beaten. It has been the fortune of the Alexandra Palace managers to find that it can be used for advertising purposes. There on one of the banks on the east of the Palace may be seen in a set of beds 5 ft. each, letters in golden *Pyrethrum* representing the word Zoedone; "after this comes the Deluge."—J. C.



Angræcum Kotschyi

to water the plunging material near the rims of the pots, and later (when considerable growth has been made and strong frosts have left us) to place them in saucers, by which alone they had water supplied.

The sweetly-scented *C. Calceolus* and somewhat bulky flowered *C. acaule* are pretty well known. *C. pubescens* has a larger and

THE FRUIT GARDEN.

PEACHES ON OPEN WALLS.

AFTER a succession of unfavourable seasons we at last have a prospect of a good crop of Peaches on open walls, for the blossom has set so thickly as to necessitate severe thinning already. And when the trees are well clothed with young wood a good crop may be fairly counted on, but it is a rarity to find well cared for trees on open walls now-a-days, for what with unpropitious seasons and the general inability of gardeners to expend sufficient labour on their open wall trees, the tenderer sorts have been very unfairly treated compared with those grown under glass. It is therefore by no means rare to find the cultivation of Peaches and Nectarines given up on open walls, the trees transferred to a late house, and the walls utilised for choice Pears. Whether this will become the rule, or whether Peaches will ever become so popular as an open wall tree as they once were, is quite a debateable point; a few good fruitful seasons may restore them again to favour, at least in the southern parts of the kingdom, for where they can be grown, for high flavour a good open wall Peach is equal, if not superior, to any grown under glass. If, however, anything like well clothed Peach walls are to be again seen, cultivators must be prepared to give the trees the same amount of attention in unfruitful seasons that they get in fruitful years. And we all know that we are too liable to give liberally to those trees that have a crop, and to starve such as have a little or none until they have no chance of recovering their energies for another and more fruitful year. For in the Peach we have a tree that needs every inducement to make clean, vigorous, and healthy growth early in the season, so that it may get well matured before winter sets in, as it is only when growth is checked while yet in an unripe condition that the wood gets seriously affected by the cold of winter; therefore, the main point is to keep the first growth from receiving any check from the attacks of aphides or other pests, by paying continual attention at this time of year to disbudbing, washing, &c. Last year was a blank as far as fruit outside was concerned, but where well attended to the trees made good growth and are now abundantly cropped.

J. GROOM.

TWO STRAWBERRY PLANTS IN A POT.

I ADOPTED this plan of double cropping three years ago in order to save room. As soon as the runners run out and formed crowns I placed them as near as possible in lines, pinching all the after growth out. And then, having a mixture of wood-ashes and leaf-mould ready, I placed a good handful under each runner, and with a clod or stone, whichever was handiest, I fixed the crown, continuing the operation till I got the quantity required. Should the weather set in dry, I water them once or twice just to settle the soil. In three or four weeks' time they form a mass of roots, and about the middle of July they are fit for potting. Having prepared a mixture of good yellow loam and rotten manure and added thereto a little road grit to keep it porous, I placed two of the crowns in a 6-in. pot, and thus proceeded till I made up my quantity, which was 800 pots instead of 1600. I have sometimes placed a little soot over the crocks, but I now use half decayed leaf-mould; I find the drainage better. The Strawberry likes plenty of water, but it must not be stagnant. I pot firmly, keeping the crown well up, then give a good watering, and shade with a few boughs till the crowns get hold of the soil. In ten days' time the roots will be through at the sides of the pot. They are then placed in an open airy situation on boards to keep them free from worms. When the pots are well filled with roots I commence giving weak liquid manure twice a week, and by the middle of October the crowns are plump and good, with glossy foliage hanging over the sides of the pots, which must not be crowded. I place them in single rows as much as I can, as, thus arranged, they get more air than they otherwise would do. At the approach of frost, I place them in cold pits on boards, to make sure of keeping out worms. In mild weather the plants require looking over now and then, as they get dry much sooner than when only one crown occupies each pot. I have some hundreds now fruiting, and have fruited several hundreds, and I have not had one pot with one ripening and the other not in that stage at the same time. The varieties I have grown have been Reeves' Eclipse, Keen's Seedling, President, and Vi-comtesse Héricart de Thury, or Garibaldi, all good forcers. After fruiting, if the plants are put out in beds or quarters at the ordinary distance of 2 ft. apart much time will be saved, as the following spring they will throw up masses of flower and fruit such as will surprise anyone who has not tried the plan. I plant them as turned out of the pots without division. I have some now of Eclipse and Vi-comtesse Héricart de Thury that were forced last year, and they are certainly the most promising of any I have in the ground. They

will not last over three years, but with forced plants at command, a quantity can be put out yearly, and with the best results. G. B. Woodville, Dover.

Putting two Strawberry plants in a pot is going backward rather than forward; the difficulty is keeping them supplied with sufficient food in the small root space to which they are confined. When large Strawberries are in demand from pots or from the open ground, more than half the fruits are picked off directly enough of the finest blooms are set, and nothing is gained in actual weight of fruit by leaving more than the plant can finish off satisfactorily. To produce fine fruit abundance of space is needed. In the open ground single plants 3 ft. apart produce large and fine fruits, but with ten or twenty plants on the same space small fruits would be the result. Size of fruit being an object in most places, most growers will, I think, be satisfied with one plant in a pot, which should be a 6-in. or 7-in. one, these being the best sizes for general purposes. I have tried doubling the plants, but have gone back to the old plan of one in a pot.

J. GROOM.

Linton.

NEW MODE OF PROPAGATING VINES.

I SEND you a Vine propagated upon the Combe Abbey system (improved); the rods are laid in turves on shelves or boards, hanging underneath the Vine rods in any convenient position, a great gain upon the old system of propagating Vines from eyes. In two months from the time when the Vines are laid in the turf the rods will be equal to two-year-old Vines. We have now some very fine Vines laid on February 16 and cut off on April 20, with rods the thickness of one's finger, and in grand condition as to the quantity of roots, as will be observed from the specimens sent. Where there is a border well prepared for their reception, no Vines could be in better condition for early summer planting. Some may think that this system of propagation will interfere with the growing crop, but it does nothing of the kind, as a heavy crop of Grapes is ripening beautifully, and I am sure that if nurserymen would adopt the plan they would find it a profitable one.

J. MILLER, Clumber.

[Nothing could be more vigorous or in every way more satisfactory than the Vine sent by Mr. Miller. It was 5 ft. in length and firmly rooted in a comparatively thin square turf.]

STRAWBERRY SUPPORTS.

THESE have their drawbacks as well as advantages. In a moist sunless season they help to keep the fruit from rotting, and the propped up berries certainly acquire a much better flavour than those which are allowed to lie on the ground. Not only is this the case, but the berries colour all round; whereas unless the ripening time should be more than usually propitious, there is sure to be a portion of each fruit deficient in colour. The fruit too when propped up is more secure from the attacks of slugs and is quite safe from beetles, which in many places devour a large amount of the best berries. Against these manifest advantages must be set the fact that in very hot weather the fruit when propped up is apt to scorch and often appears to ripen prematurely. The arid air passing over the berries, and the blazing hot July sun coming down on them, unprotected as they are from its fierce rays, which in the ordinary way are warded off by the foliage, overharden the berries and give them a stunted, starved-like appearance, from which they never recover. Still in spite of this drawback I would counsel that the berries be supported, as where first class highly coloured, finely glazed good flavoured fruit is desired, and where time can be spared for the work, this is the best way to secure it.

Many of the Strawberry supports hitherto employed have fallen into disrepute, growers finding they did more harm than good. This is especially the case with those made of wire, as when the footstalk is laid on it the weight of the fruit causes it to break, or at any rate dislocates it, so to speak, and thereby impedes the flow of sap just at the most critical period in the ripening of the fruit. The very same thing happens under glass when no supports are used; the footstalk, borne down gradually by the weight of the ripening fruit, rests at last on the sharp, hard edge of the pot, and there sustains an irremediable injury. No tying or propping up then will heal the wound or restore the healthy, quick flow of the sap. The more vigorous the plants the longer will the footstalks be, and the more likely will they be to suffer damage in the way described.

The favourite support for Strawberries is twiggry Birch, as all that one has to do is to cut it into lengths, leaving some two or three forks to each, and let the berries or their footstalks rather rest on them. In this manner each berry will find proper support, and the fruit will not in any way be crowded together. No tying is required; each berry will drop as it were into its allotted place. It may be fancy, but I always think that a greater weight of fruit is gathered when the berries are thus kept up. The stalk being maintained in a perpendicular position, it would seem, or, at any rate, it is only logical to suppose, that the flow of sap would be freer than when lying more or less flat upon the ground. At any rate, I do know that the berries come finer both in colour and flavour, which is quite enough to recompense one for the labour involved in the operation. Perhaps for the open air the Strawberry tiles, so called, are the best. They are in shape something like the half of a flat, the fruit laying on the rounded portion. They keep the berries clean, but in very hot weather the sun is apt either to roast them before they ripen or blister them when ripe.

JOHN CORNHILL.

FRUIT PROSPECTS IN KENT.

THE fruit prospects, so far as they can be judged at present, have never been more encouraging. The trees throughout the winter and spring were thickly clad with promising buds, and now the bloom, which we have lately had the pleasure of seeing over a large area in Kent is wonderfully fine. Danger is not quite over yet, but, the season of bloom being much later than usual, the chances of escape are greater. The beauty of the trees is the most noticeable thing at present, some of the kinds, such as Sharp's and the Graham Russet, being pictures. In the district we visited there is a good deal of well-managed orchard with low trees, but mainly they are standards. Not unfrequently old and neglected orchards are seen. Many of these, however, are being re-grafted. Old kinds that canker or were otherwise worthless are being replaced by those proved to do well. A singular effect is produced at this time of year by large and old trees all headed off and naked, and at the end of each stout stump a ball of clay with a point. Where the whole orchard is grafted at the same time the effect is very curious. The culture of the Cob Nut is exceedingly well done in the same district, the trees being generally models of good training in the open basket form. Whether so much repression and so much close pruning are desirable we are not sure; but one would think that a freer form, carefully pruned all the same, would lead to greater fertility. The Nut worm is very bad this year. The more beautiful effects are from the Grass orchard, the dark stems rising from the fresh green turf; but, as is well known, the Grass orchard, to be satisfactory, must first be a cultivated one for a number of years. It also, if neglected or too closely planted, is very apt to get into bad condition. Where the low and basket-shaped form of Apple tree is adopted, it of course means continued cultivation of the ground. Though perhaps better fruit may be made in this way, it is questionable if, considering the labour, it is the best plan. V.

Fruit Prospects South-west of London.—In this district fruit trees standing on the extreme verge of orchards, exposed fully to frost and north-easterly winds, apparently have suffered considerably, but still sufficient fruit remains for a crop. Trees in central and better protected positions have escaped with comparatively slight injury. The sharp and heavy showers of rain, accompanied by rough winds, have quickly dislodged the imperfectly-fertilised blossoms, and it is now possible to form a more accurate calculation as to which are likely to stand. Pears promise well, the embryo fruit having attained a safe stage. Apples are setting satisfactorily. Plums are uncommonly well furnished with fruit, and the same may be said of Peaches and Nectarines. Bush fruit will likewise be very productive this season. Strawberries show abundance of flower, and although the tips of the petals were slightly browned, the stamens and pistil appear to be uninjured. Cherries and Apricots are not much grown in this locality. However, such trees as have come under my notice promise to produce excellent crops.—R. G.

Fig Trees and the Frost.—In this locality Figs have been grown largely as wall trees and even open standards, but the past winter has left its mark on some that have attained large dimensions, and that have hitherto never been known to fail. At present they present a very forlorn aspect, all the young wood being quite dead. They will doubtless start again from the main branches, but this year must prove a blank as regards open-air Figs in this district, except where precaution was taken to cover the wood during the severe weather. My own experience with Figs on open walls is that

they will repay unnauling after the leaf has fallen and laying in bundles along the foot of the wall where they can be easily covered with litter or evergreen branches, or if trained in an erect form the shoots may be tied together and thatched over with long straw or reeds, for with wood of such a pithy nature as that of the Fig, I do not think they are safe when the thermometer falls 20° below the freezing point, a frequent occurrence of late years even where we are supposed to get a mild climate.—J. G., *Linton*.

Training Fruit Trees.—I shall be obliged if you will ask some of the readers of THE GARDEN, perhaps Mr. Hobday, if they have tried the French and Belgian plans of reversed perpendicular training of fruit trees on walls, wire trellis, and on round hoops, the branches being 12 in. apart. I planted last winter many pyramid Plums for reverse training, so I shall be able in two or three years to say how they answer. I am trying some trees on the upright or palmette plan, reverse training every other on a wire trellis.—T. J. H.

Gooseberry Caterpillar.—I am sorry to say that this troublesome pest is beginning its ravages in this neighbourhood already this season. I have tried several methods to destroy it without effect, such as syringing the trees with soap-suds and dusting with Hellebore Powder, but no method pays so well as hand picking if begun in time. The trees that were most affected last season are the first to suffer this year, although we took every precaution in the winter to prevent a recurrence of the evil.—J. C., *Farnboro'*.

Pears for Rough Climates.—Of the four varieties named by "Sylvestris" from Mr. Müller's list, I only know one, the Zephirin Gregoire; this I grew for several years as a pyramid on the Quince, and never had a fruit fit for table from it. The fruits were about as hard as the wood, were much cracked, and never ripened fit for table. This was at Hardwicke, where the majority of Pears do fairly well.—D. T. FISH.

THE INDOOR GARDEN.

PLANTING OUT AZALEAS.

"S. D." (p. 529) says that the Belgian method of planting out Azaleas during the summer months is "not worth imitating in this country," as "the only gain would be the size, and that, in nine cases out of ten, would be no gain at all, as it is not large plants that are desired, but compact little specimens adapted for furnishing a conservatory or greenhouse." It is difficult to follow "S. D." in this matter, as the gain in size should be quite enough to recommend the system either to those who grow for profit or pleasure; moreover, are not large specimens also in request for conservatory decoration? As a fact, however, the majority of these Continental-grown plants are just the size for room, table, window, or greenhouse decoration, and are just about as compact as it is possible to grow them. They are also produced in much less time, and at the expenditure of but little outlay and labour compared with those grown in this country. The low price asked for and realised for these small Azaleas often surprise those who are not acquainted with the manner in which they are grown, for it is certain that they could not be produced at the money by the system generally followed in this country. Many think that it is cheap labour that lessens the cost of production, thereby enabling the grower to sell at such low rates; and this, of course, has something to do with the matter, but when to cheap labour we add economy in labour and better results, i.e., larger, handsomer plants in less time, we cease to wonder that the foreigner can send so many thousands of these little Azaleas to be sold at a low rate in this country.

In my former paper on this subject I wrote mainly from a commercial point of view, although the planting out method may be adopted with excellent results in private gardens. For years past I have thought that growers in England might compete successfully with the Belgians in this matter, and I am sure that, provided quality was the same and prices not much higher, English grown plants would be preferred. The only point upon which I have ever been doubtful was whether our average summer was warm enough to warrant perfect success without the aid of a glass roof, but this doubt was set at rest in the wet and cold season of 1879. In that summer one of our large growers gave the Continental system a trial, and the plants were all that could be desired in the autumn, so that in spite of all that may be urged to the contrary, we may expect to see the Belgian method in full operation in English nurseries before long. The fact is that English growers

are beginning to wake up and to ask themselves whether they are justified in buying what they could probably produce as well and as cheaply themselves.

Pot culture is at the best a laborious and expensive process, and all much engaged in plant growing are aware how matters are simplified when pots can be dispensed with during the summer months. Whether large specimens or small plants are in question the advantages are the same, for if a plant can be grown from the cutting or graft large enough for a $4\frac{1}{2}$ -in. pot in two-thirds of the time and at half the expense involved by pot culture, why not do it? Perhaps for very early forcing the plants should be retained in pots, as when plants have to be hard driven in midwinter the pots should be full of roots, but even they might have one year in the open ground. I do not think that your correspondent can have ocular evidence of the difference between Azaleas planted out and those grown by the slow process of pot culture, or I think he would welcome the open-air method. It is astonishing the effect the extra allowance of good food has upon older specimens that may have acquired a somewhat famine-struck appearance. I remember once witnessing the result of an experiment of this kind in Messrs. Van Houtte's nursery. Of a number of specimen plants, quite large ones, half were planted out with the young stock; the remainder were kept in pots. All were good at housing time, but those planted out were by a very long way the best and most saleable. The custom of planting out large Azaleas is indeed a common one in Belgium, and forms part of the ordinary routine in a private garden. My own opinion is that Azaleas are, in a general way, too much coddled in this country, and I may add that this is the opinion of most Continental growers, many of whom have remarked to me that too much artificial warmth is employed in their production. J. CORNHILL.

DEUTZIA GRACILIS AFTER FLOWERING.

THIS is one of the most useful flowering plants we have. It is easy to cultivate, can be had in bloom from November to the end of June, and its pure white flowers during the dark months make it valuable both as a decorative plant and for cut flowers. Notwithstanding, however, all its good qualities, I don't think any other plant is more neglected, judging from the many poor specimens of it with which we meet, making wood like fine knitting needles, and here and there a few crippled blooms. As soon as the flowering is over the plants are laid aside anywhere, or placed out-of-doors to take their chance, and when the flowering season comes round again a few crippled flowers make their appearance as usual. The two main features essential to success are, first, to get plenty of good strong wood, and secondly, to thoroughly ripen it, points attained as follows: As soon as the plants are out of bloom cut out all the last year's wood, leaving a sufficient number of the best young shoots, and if the plants should require a shift into larger pots, use a good, strong, turfy loam, with sufficient clean rough sand to keep it open. Mix no manure with the soil, as it keeps sweet longer without it. Put the plants in a good moist heat, with plenty of light, and give a liberal supply of liquid manure to the roots of any not repotted. As soon as growth is completed, gradually diminish the supply of water, and maintain a drier atmosphere, till the wood gets brown and thoroughly ripe. Then the plants may be placed outside in a sunny, sheltered situation, and the pots plunged up to their rims in dry ashes, where they may remain till the plants are wanted. No amount of frost seems to do them any harm as long as the buds are dormant. JAMES SMITH.

Waterdale.

METHONICAS, OR GLORIOSAS.

RECENTLY there have been noticed in the pages of THE GARDEN several instances of the flowering of these plants, and as their curious flowers are likely to win for them general favour, a few words on the distinctions of the different species and their cultural requirements may be acceptable. The genus *Methonica*, with the somewhat similar plants *Saundersonia* and *Littonia*, form a tribe of the Order Melanthaceae, and are easily distinguishable by their curious, fleshy, twisted tubers. These tubers are perennial, and produce annually a long, herbaceous, Lily-like stem, bearing leaves remarkable in having tendril-like tips, which twist round branches on other objects for the support of the plant much after the manner of the leaves of the Pea. The flowers of the *Methonicas* are borne in racemes on the end of the stems, each

flower springing from the axil of a leaf, as shown in the accompanying woodcut. There is little difference between the three admitted species, except in the size and colours of their flowers, and as these vary considerably according to solar conditions, as well as at different stages of their development, the same species has received several names. The name *Gloriosa*, by which these plants are generally known, is a misnomer, and has therefore been dropped for the more acceptable one *Methonica*. Few plants are more easily managed than the *Methonicas*, a stove or warm greenhouse suiting them exactly, while for soil almost any well-drained mixture will be found to agree with them. I have tried them in peat, in loam, and in a mixture composed of nearly all leaf-mould with almost similar results, a little manure being given to help the colouring of the flowers. The tubers should be potted in spring and started in a little bottom-heat. As soon as the growths are well away, the plants should be placed in the stove or warm greenhouse, and trained along a rafter or up a pillar, so that the flowers may hang gracefully downwards. After flowering the plants should be gradually dried off and placed in a dry place till the return of spring. *M. virescens* is the proper name for the plant known in gardens as *Gloriosa Planti* and *G. Leopoldi*. It is a native of South-west Africa, where it is said to be cultivated for the virulent poison contained in its roots. The flowers of this species are larger and brighter-coloured than those of *M. superba*, being pale yellow when young, and changing to a more or less bright red with age. They are divided into six re-



Methonica (Gloriosa) superba.

fracted petals, the upper part of the margins of which are crisped and undulated, and the apices curled over or revolute.

M. superba, the species represented in the accompanying woodcut, may be easily recognised by its much crisped and undulated flowers, and the apices of the petals being erect, as shown in the figure, instead of revolute, as in *M. virescens*. It is perhaps the poorest of the three species. It is a native of the East Indies.

M. grandiflora is another African species, and was discovered by Mr. Gustave Mann in the island of Fernando Po, whilst collecting for the Royal Gardens, Kew. Beyond the size of the flowers, which are twice as large as those of *virescens*, there seems little difference between it and that species. Z. B.

Myriophyllum proserpinacoides (syn., *Herpestis reflexa*).—The first flowering of this interesting aquatic is noted on p. 328 of the current vol. of THE GARDEN. It may, perhaps, interest some to learn that it is now flowering abundantly in my stove, where it is growing in an inverted bell-glass with *Aponogeton* and *Salvinia*. This is, I believe, only the second time in which it has blossomed in this country.—G. PIM, Monkstown.

Nertera depressa.—Having been very successful in growing this pretty little gem into dense green cushions thickly studded with orange berries, I venture to offer you a note as to my mode of treatment. The pans in which it is grown are placed, from the time the fruit declines till about February, in a cool Vinery, from which frost is just excluded in winter. They are then introduced to an inter-

mediate house with a night temperature of 55° or so. Here the plants rapidly push into blossom, and being grown close to the glass set their fruit freely, and the earliest pan is now literally covered. I find it desirable to have alternating paus, as a good one of this year may not be so perfect next.—GREENWOOD PIM.

DRACÆNA LINDENI.

THIS is one of the most brilliant acquisitions recently made among fine-foliaged plants, and a worthy rival of *D. Goldieana*. During the last few years numerous varieties of *Dracæna* have been put into commerce, derived either from direct introductions from the



Dracæna Lindenii.

Pacific Islands (especially the Solomon and New Hebrides), or from hybridisation. All or nearly all of these possess lance-shaped foliage, decidedly petioled, and leaf-blades for the most part striped and brilliantly coloured. It is, therefore, fortunate that *M. Linden*, of Ghent, has been able to offer to the public a form which, while it is in no way inferior to its forerunners in beauty, is distinct from them in habit and aspect. The stem of *D. Lindenii* is erect and simple; the leaves are arranged regularly, deeply stem-clasping at the base, margined with white and rose, and copiously traversed by regular bands of white and pale yellow, shaded and intermixed with zones of green. It is this particular arrangement, the blending of these coloured bands, that gives the special merit to this superior form of *Dracæna*. It is a plant which will doubtless gain a high reputation, but we fear it will, unfortunately, be distributed but slowly, as its propagation is very difficult.

CAPE HEATHS IN TRADE ESTABLISHMENTS.

It is often asserted that the popularity of Cape Heaths is on the decline, but one would scarcely imagine this to be the case, on looking through such large trade establishments as those of the Messrs. Low at Clapton, and Messrs. Jackson and Son, Kingston-on-Thames, where the culture of this large and varied family of flowering plants is made a speciality of. It is, however, more than probable that a large number of kinds have almost, in many instances I think quite, dropped out of cultivation, and that the tendency of the present day is to grow selections rather than collections, those kinds known to possess exceptional merits either for decorative purposes generally, winter flowering, or for exhibition being produced in much larger numbers than was formerly the case. Of such kinds as *Massoni*, *hyemalis*, and *ventricosa minor*, there will never be too many, the demand for the first and last named almost invariably exceeding the supply. So eagerly indeed is *coccinea minor* sought after that even the larger and exceptional resources that the Messrs. Low possess for propagating Cape Heaths are often found inadequate for maintaining a sufficient supply of this favourite variety. The same may be said of the choicer hard-wooded kinds, such as *aristata major*, *Massoni*, *Cavendishi*, some of the tricolor section, &c., the demand for which is brisk and constant, owing to the fact that they are in great request for exhibition purposes, and that some of them at least are extremely liable to die off when arrived at anything like the desired size, thus creating blanks which must perforce be filled up. Hence there is a large trade done in half and quarter specimens of these comparatively slow-growing, choice, hard-wooded kinds, and well-furnished, scientifically-trained plants are sure to find purchasers.

Propagation.—Private growers, as a rule, meet with but little success when they attempt the propagation of Cape Heaths generally, but those who grow them for sale find but little difficulty in working up large stocks of those kinds most in demand. It is simply an affair of special convenience, in combination, of course, with the necessary amount of knowledge. Where Heaths are largely propagated the propagating house is, generally speaking, a light, well-heated structure, sometimes a lean-to, but more often span-roofed, fitted up with a tan pit in the centre, and stages around. The soft-wooded kinds are propagated in the spring from cuttings furnished by the plants that have been introduced into warmth at the latter end of the year. Only sufficient heat should be maintained to cause the plants to make free growth, an average temperature of some 50° to 55° being quite enough; more heat than this would cause the growth to become weak and spindly and deficient in stamina, in which case they would quickly fall a prey to damp. In preparing the cutting pots the greatest care is taken to ensure perfect drainage, they being filled half full of crocks, some fibrous material being placed thereon to maintain it free and open. The compost is, of course, fibrous peat, fine and well sanded, the top inch being pure silver sand coming quite to the rim of the pot. The pots being filled, they are stood in water until, by absorption, the whole body of soil and drainage becomes moistened through. I should add that the sand employed for surfacing must be quite dry; the pot being tapped gently on the bench, the particles are brought so close together that when moistened there is no shrinking, the sand remaining level with the rim of the pot. This is an important point, much more so indeed than many would suppose, for should the sand sink when the cuttings are inserted there is great danger of many of them shanking off—between wind and water, as it is termed. In making the cuttings the greatest care must be taken not to allow them to remain for any time exposed to a drying atmosphere. A good plan is to spread a damp cloth

on the bench, standing thereon a 2½-in. pot bottom upwards. Each cutting as it is made is dropped through the orifice, and is thus preserved plump and fresh until the time comes for insertion. The cuttings made, a bell-glass is placed on the sand, gentle pressure causing the edge of it to form a clearly defined circle, inside of which the cuttings are to be inserted, straight lines at equal distances being drawn from one edge of the circle to the other to guide the operator in his work. I should have said that the foliage is trimmed off the cuttings by means of a small pair of scissors; the knife only being employed to make them of the desired length. The pots are then plunged in the tan bed already referred to, and until the cuttings show signs of growth the glasses are kept over them, being removed only early in the morning to wipe out condensed moisture. This attention is very necessary, and if neglected will cause the cuttings to damp off wholesale. As soon as it is perceived that roots are made a little air must be admitted by tilting the glass on one side, gradually increasing the amount until the glasses can be entirely taken off. From the time that the cuttings are inserted until they take root the foliage should never on any account be moistened. Owing to the pots being plunged, and the entire absence of circulation of air around the cuttings, there is but little need to water, but when the sand appears to be verging on dryness, a little water poured gently over the bell-glass will by absorption restore it to its proper state of moisture. The above remarks apply to the so-called soft-wooded kinds and such varieties as *Cavendishi*, *ventricosa*, *Spenceriana*, &c. Hard-wooded *Ericas*, such as the tricolors, *Marnockiana*, *Austriana*, *aristata major*, *nobilis*, *Massoni*, *ferruginea*, &c., are propagated towards the close of the summer from cuttings of the current season's growth, just verging on maturity. The work is set about in much the same manner as described for the soft-wooded kinds, only that the pots are stood in a very close, cold frame, and densely shaded until September, when they are taken into the propagating house and plunged in gentle bottom-heat until the turn of the year, when the greater portion of them will be rooted, and may be hardened off. Some of the hard-wooded kinds are in the hands of skilful propagators easily increased, but some are extremely difficult to manage. Perhaps the most difficult of any are the *aristatas* the wood of which is extremely hard and wiry, so that the cuttings often stand months, and then go off in a most provoking manner. *Massoni* is also uncertain, and those useful varieties, *Cavendishi* and *ventricosa coccinea minor*, are not so easily increased as one might infer from their free growth.

Treatment of the Young Plants.—As regards potting off the rooted cuttings, there is no fixed time for this operation. As soon as a certain number are ready, some good fibrous peat is sifted fine, adding to it plenty of silver sand, and the little plants are put into small pots, placed in a light position in a warm house, to be later on removed to cold frames. The choice kinds are potted off singly, but the free-growing, cheap varieties are placed two and three together in 2-in. and 2½-in. pots, so as to economise space. Potting off thus goes on throughout the spring, the whole of the stock coming by the summer into cold frames, where they get plenty of air, a little shade in hot weather, and are pinched back to promote a bushy formation. Wintered in cold frames, oftentimes on shelves near the glass, or in frost-proof frames, these little plants are in prime order for shifting the following March. The peat used for them is pulled to pieces by hand in most places, good drainage is given, the soil is pressed in firmly round the roots, and the plants are placed in frames on an ash bottom, and kept rather close for a time. During the summer they are freely exposed to sun and air, and by the autumn the free growers will have become well established in 2½-in. pots, the more slow growing kinds coming into a size smaller. The following March, the soft-wooded and many of the free-growing kinds are shifted into 4½-in. pots, and treated as in the previous year, so that by the autumn they are good saleable plants. The hard-wooded varieties however require another season to get them to this stage of development, but the choice kinds generally are freely disposed of when they become established in 2½-in. pots.

Treatment After Flowering.—Those plants in 4½-in. pots that may not have found sale are shifted on the following year into 6-in. pots. Such kinds as *hyemalis*, *gracilis*, &c., are cut down below the lowermost flower, and as soon as they break away into growth again are shifted on. Those kinds that do not throw up a long spike of bloom, and are of bushy habit, merely have the

flowers picked out, and have the longest shoots topped now and then. When mildew appears the whole of the foliage is at once dusted with flowers of sulphur. J. C. B.

THE KITCHEN GARDEN.

VEGETABLE MARROWS.

Now is the time when the cultivation of these must be taken in hand. Their propagation is a simple matter, the only way of raising young plants being from seed. This may be sown any time during the spring months in a house or frame under glass or now in the open ground. As the time is now past for spring sowing, little need be said about it now beyond stating that the seeds should be sown in a pot or box of soil in February, March, or April, and placed in a temperature varying from 40° to 60°. The young plants should never be kept far from the glass, as they have a great tendency to run; and if they are forced to do this when young they do not make such robust early fruiting plants as when grown dwarf and strong. At no time do they want much heat, and as soon as the leaves have been well formed they should remain in no other place, except a cold frame or under a hand light. Here they can be gradually hardened off until the end of May, when they may be safely transferred to their fruiting quarters. This should be a spot well sheltered from wind, but fully exposed to sunshine. They grow rapidly in shady positions, but in such the shoots are long-jointed and the fruit few and far between. Where old vegetable refuse has been accumulating for some time and is now in the form of a large heap the summit of it will afford one of the best places which could be named for Marrow growing. A wheelbarrow-load or two of loam mixed with some good manure should be placed in a little round mound in which to plant, and after being well started into growth in this the roots will ultimately derive much nourishment from the refuse. Besides, the shoots will run all over the sides and give an otherwise unsightly mass an ornamental appearance.

When plants have not previously been raised, seed may be sown in the mounds in question. They will soon grow, and if well attended to, may surpass those raised under glass before many weeks pass. Where no elevations exist on which to grow them they will do very well on level ground in any part of the garden or on a sloping bank. In ordinary good soil no loam need be added, but a quantity of manure will be beneficial. A hand-glass should protect the young plants or seedlings for a little time at first, but this is seldom wanted in June when the shoots begin to run in all directions this must not, however, be allowed to go on to too great an extent, as from a mass of shoots and leaves fruit need not be expected. Thin training and frequent stopping constitute the kind of practice most desired. Unlike Melons and Cucumbers Marrows fruit freely on the main stems, and four or five of these from each plant will produce an enormous number of fruits before they are many yards in length. As the stems grow it is well to restrict them to the above number, and if a long succession of produce is wanted too many fruits must not be allowed to be on one plant at once, or, worse still, fruits long out of season will, if left on, do more harm than many small ones.

A succession of Vegetable Marrows do not need to be raised. Those which we plant now will bear in July and from the same plants fruit will be cut in November. In dry weather or in dry places manure water should be freely given during August and September, and if fruits are cut and stored in a dry place in October, they will be found most useful for months afterwards. CAMBRIAN.

Asparagus Kale.—I see dwarf Scotch Kale highly spoken of, and I have not one word to say against it. We always grow it, but last season I thought I would try the Asparagus Kale. The two kinds were grown side by side; they were planted at the same time on our dry, light soil, and of the Asparagus Kale we did not lose a plant by frost, while the Scotch Kale was much injured; the Asparagus Kale being much dwarfer than the Scotch was the cause of its standing best, and it is more valuable in a spring like this, when the supply of all kinds of green vegetables is deficient. As soon as growth begins, one may commence to gather the tops, and afterwards the side shoots, thus keeping up a supply till young spring Cabbages come in. I have grown several kinds of Kale, but none are so tender as this. I would therefore recommend all who have not hitherto grown it to give it a trial; in fact, I prefer it to young Cabbages.—J. C., *Farnboro'*.

New Zealand Spinach.—Everyone who has anything to do with gardening knows how difficult it is to keep up a supply of Spinach during summer, as the only end and aim of plants then seems to be to flower and perfect seed, for no sooner are they out of

the ground than up they go with long stalks having but few leaves and those so small, that one has to go over a large bed to get enough for a dish. Finding this to be the case, I never attempt to grow the ordinary Spinach now except for winter and spring use, but make a plantation of the New Zealand kind, which delights in hot weather, and is an excellent substitute for ordinary Spinach, possessing much the same flavour. Being tender, the best way is to sow in heat, and pot off the plants three in a pot, and when hardened off plant out, for although they will come in the open, the season is far advanced before there is any to gather. The habit of the New Zealand Spinach is to run and spread over a considerable space after the manner of Cucumbers, and plants therefore require plenty of room. A good place to grow them is on a rubbish heap, where there is a quantity of decomposed vegetable material, as they are fond of rich matter, and when treated in that way, always produce juicy succulent leaves without any aid from the watering-pot. If planted in ordinary garden soil, it should be previously enriched by digging in a good coating of rotten manure, making holes a yard or so apart, which is quite near enough to put in the plants.—S. D.

THE ASPARAGUS COMPETITION.

THIS will be held in the horticultural department of the Bath and West of England Society's Show at Tunbridge Wells, commencing on Monday, June 6. Notice from those desiring to compete should be given to the secretary of the horticultural department, the Hon. and Rev. F. T. Boscawen, Show Yard, Tunbridge Wells. All exhibits should be staged on the morning of Monday, not later than Twelve o'clock. The following prizes are offered for the first year's exhibition, and are (except the last two for market growers in Kent) open to growers in any part of the United Kingdom.

Prizes for Gardeners in Private Places.

For the best bundle of Asparagus grown by the exhibitor: 1st prize, £4; 2nd, £2 10s.; 3rd, £1 10s.; 4th, £1. The bundle of Asparagus is to consist of sixty heads. The prizes will be given to the largest Asparagus, provided it be in all other respects unobjectionable. Prizes will not be given where, in the opinion of the judge, there is no merit. The Asparagus must be free of earth, and the bundles will be opened by the judges in all cases where they think it well to do so. No imperfect or "double" heads will count.

Prizes for Amateurs not Employing any Regular Gardener.

For the best fifty heads, £2 10s.; second prize, £1 10s.; third prize, 15s. Grown by the exhibitor.

Prizes for Cottagers.

For the best twenty-five heads grown by the exhibitor, £1 10s.; 2nd, £1; 3rd, 10s.; 4th, 5s.

Prizes for Market Growers.

For the market grower who shall exhibit the best three bundles, each containing one hundred heads, £5 5s. This prize is offered by the Bath and West of England Society.

For the market grower in the county of Kent who shall exhibit the two best bundles of Asparagus, each containing one hundred heads: 1st prize, £3 3s.; 2nd, £2 2s.

THE WIRE-NETTING TRADE.

THE *Ironmonger* has lately been attacking certain makers of wire netting for deceiving the public and the trade by specifying false gauges in order to dispose of their netting more readily under the guise of cheapness. The wire-netting trade is one of large proportions, which are, moreover, yearly increasing. It is estimated to amount to about £200,000 yearly, wire netting being used for a wonderful variety of purposes. Lots of ten and twenty miles of it go out to Queensland in execution of one single order to fence the great sheep-runs in that colony against kangaroos, which are most destructive to the herbage on which the sheep feed; and, again, quite as large lots go to New Zealand to fence out the rabbits and hares which are in a similar manner destructive to the Corn crops. In this country, too, wire netting is very largely used in protecting young plantations from the ravages of hares and rabbits, especially in hard winters when they can find nothing better than young bark for their food. It is also much used in spring and summer for keeping rabbits and hares from eating up young Corn crops. Since the Hares and Rabbits Bill, too, has become law, rabbit warrens of several acres in extent are being fenced in with it on many estates. And then there is "the very latest" use, of making lawn tennis nets

of wire netting. It is also useful for poultry enclosures, aviaries, and indeed everyone wonders, who knows anything about the trade, where all the wire netting goes to. It need surprise no one, therefore, that in so extensive a trade there should be found in it dishonest dealers.

In *The Ironmonger* of the 23rd ult. a correspondent writes thus: "I am desirous of thanking the many members of the trade who are giving support to the movement for exposing the gross frauds committed by some of the long-discount firms of wire netting makers in supplying false gauges, and otherwise deceiving the trade and the public. I received only the other day a sample of 2-in. netting from an ironmonger in the west of Scotland, asking me to gauge the wire, and let him know the result. He had gauged it himself and had doubts as to the specification, and telling me that, should my opinion coincide with his own as to the untruthfulness in the specification, he should give me the name of the maker. The sample was specified as 18 gauge, but it was simply 19 gauge—strictly speaking, perhaps full 19. In short it was a fraud."

The same correspondent adds: "One purchaser had a sample of 1-in. mesh, 19 gauge, sent for 1-in. 17 gauge, and, discovering the fraud, the sender received only an indignant letter instead of an order." "The rage for cheapness," says another correspondent, "regardless of quality, victimises many, as only a few take the trouble or think it necessary to test the gauge of the wire, but simply take it on trust. Judging from the price lists constantly coming to hand, it is evident that in the case of some makers there must be bad quality of workmanship, or materials, or both."

GARDEN DESIGN.

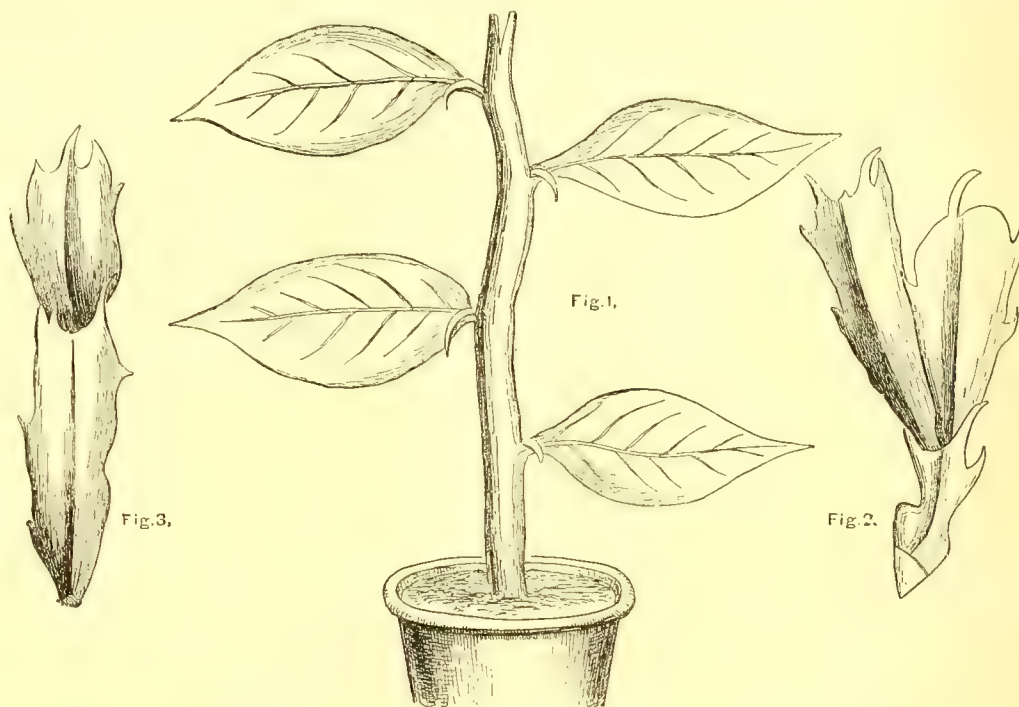
PONDS AND FOUL WATER IN GARDENS.

It is surprising the number of unclean duck ponds that embellish our gardens. We do not only apply the term to the duck-pond proper of the farmer, but consider it as well fitted for the so-called pieces of ornamental water that mar so many otherwise pretty gardens. People have a kind of mania for water, which will probably never be eradicated; the effects they see of water in its best conditions please them so well that they must bring it near their houses, where it is quite impossible to see any of the said effects. But one does see the scum and filth that accumulate in stagnant water, and feels its deadly smell on what ought to be many a pleasant lawn. Water is rarely tolerable, except in such large, bold, and distinct masses that it reflects light in the landscape. Such bold sheets are best some distance away—the effect is better; but also, in our cold, wet climate, it is very desirable that the vapour and more immediate effects of water—even beautiful and clean water—be kept rather far away, and, inasmuch as this cannot be done in very small places, as a rule, water is better entirely excluded from such. In one form, however, it is always innocuous, and that is as a streamlet or rill. These can harm no one, and may, in a garden or near it, be always made alive with beauty by bordering them with flowers and trailing shrubs, broken by little bits of smooth Grass here and there. A hundred yards of a chalk stream alive with fish, such as one may see among the Wiltshire Downs, clear as a diamond on the coldest day, is better than many pretentious and costly pieces of "artificial water." A very bad quality of the duck ponds—and, indeed, all kinds of artificial water in garden and park landscapes—is the astonishing facility with which they fill up with mud and leaves, in that state becoming the more offensive and unhealthful. The cost of cleaning these is great, as many an owner finds out. Where in a large park the effect of water in the distance is good, and where the views over it are really picturesque, the cleaning is worth doing, even if it periodically involves an expense of a thousand pounds—not, as we know, an uncommon charge for taking the mud out of such "lakes." But in places where no kind of good effect is obtained from the water, where the scum and the smell are the chief results obtained, and where, perhaps, the very best part of the lawn is cut up by an ugly hole of water, the best way is not to clean it out, but cut a drain from it, and make it into a snug little garden for Rhododendrons, Azaleas, hardy Ferns, Lilies, and other flowers. Then, at all events, we should have a beautiful thing, into which, if the children fell, they would be picked out again unhurt. By the way, the presence of these duck ponds and fountain basins, &c., about gardens, is often a serious danger for young children toddling about—many an one has been drowned in them.—*Field*.

PROPAGATING.

Primulas—The remarks of "J. G." respecting Primroses, in which he speaks of quite a crop springing up, probably from pieces of roots left in the ground when removing some plants, show how easily these beautiful subjects can be propagated. With the exception of the Chinese Primula, I find that most of the species can be multiplied to almost any extent from pieces of the root, and I have largely employed this plan in the case of the many forms of *P. denticulata*, as well as Sieboldi and its varieties. The method I adopt is the following: Fill some well-drained pots with sandy soil as for cuttings, then take as many of the stout roots as can be spared, and when dormant the plant may be rather severely mutilated in this way without injury; next I cut the roots into pieces about 1 in. in length, and dibble them in thickly so that the top of the root is just covered; then, after watering, I place them in a frame, and in spring they will push forth leaves from the upper part, and soon form little plants, which may then be either potted off or planted in a prepared bed in a shady place.—H. P.

Epiphyllum truncatum.—The best way to increase this is grafting it on the *Pere-skia* (fig. 1). Select a stock of the height required, and graft on the top, thus forming small standards, which look best. Cut the scion as shown (fig. 2), and make the incision in the stock in such a way that the rinds fit properly; tie with worsted or matting, the former being preferable. The grafted plants may then be set on the shady side of the propagating house, where they will require no covering, but an occasional slight sprinkling with water overhead. They will unite in about six weeks. When they commence to grow a stick must be so placed as to reach a little above the stock, and to this the scion must be tied to keep it in position. If dwarf plants only are wanted, cuttings made as shown (fig. 3) will emit roots freely enough. They should be inserted round the edge of a 5-in. pot, well-drained and filled with equal parts of loam, peat, and silver sand. Epiphyllums may be grafted at almost any time of the year, but September is the best month.—H.



Modes of propagating *Epiphyllum truncatum* and its varieties.

TUBEROUS BEGONIAS FROM CUTTINGS.

With most plants as soon as a cutting roots it becomes a perfect plant, endowed with like powers of reproduction as its parent. This canon does not hold good with tuberous-rooted Begonias. Almost any part of the leaf or stem may be rooted and made to grow, but only specially furnished parts will form bulbs that will break again into plants the following season. Each cutting must be furnished with a bud at its base to enable it to form a bulb. In regard to most plants, the existence of such buds may be assumed as a matter of course. But this is not the case with most of the flowering shoots of bulbous-rooted Begonias. Without ocular demonstration it is safer to assume that such shoots will be destitute of buds. The fact has an important bearing on the cultivation as well as the propagation of bulbous Begonias. Those who stop the growing shoots, for example, after they reach a certain stage will almost assuredly be disappointed in their breaks. Few or none of these will take place. Hence, all late stopping of the flowering shoots should be avoided. But the greatest mistake of all occurs in inserting cuttings without buds. They root all right, and so deceive the uninitiated,

but form no bulbs or tubers, and so perish at the end of the season. By watching the plants carefully sufficient cuttings may generally be found. Breaks often occur from the bottom, and occasionally on the side branches of growing rather than flowering branchlets. These will be furnished, as a rule, with buds under each leaf, and may therefore be converted into cuttings. But the safest and surest time to propagate these tuberous Begonias is when they break in the spring. Each shoot may be heeled or cut off close to the crown of the tuber or bulb, and each such shoot will not only grow and root freely, but will also form a bulb or tuber; by heeling them off, however, the old tubers at times refuse to break freely, or at all. To ensure vigorous breaks the safer way is to leave a pair or two of leaves above the crown of the root. The eyes of these will be forced to break into a second crop of growing shoots, which may either be allowed to form the flowering plants or be again removed and converted into cuttings.

Another mode is to allow the young shoots to grow to a height of 6 in. or more, and then merely to remove and root the tops. If this is done in time, that is, before the flowering habit of growth is established, such cuttings will also form tubers. The leaves of many of the tuberous-rooted Begonias will root almost as freely as those of

the Rex and other variegated sections; but, unfortunately, they seldom form bulbs, and so this method of propagation, which is so simple, rapid, and successful with the variegated-leaved Begonias, seldom succeeds with the tuberous-rooted ones.

Mode of Rooting the Cuttings.—The leaves and stems of many of these Begonias being so soft and woolly, over-close methods of rooting the cuttings should be avoided. Hence bell and other glasses are better dispensed with, and also all excessive shading or over-closeness. A house or pit commanding a top and bottom heat of from 60° to 70° is the place to root the cuttings in. I am aware that the plants vary very much in hardiness, some being absolutely hardy, and others thriving best in a stove temperature. It has also been affirmed that the rounder and smoother the leaves, the more hardy the varieties and *vice versa*, and it would be interesting to learn the experience of your readers on this point. But for mere purposes of propagation, it is not needful to classify tuberous Begonias into hardy or more tender. They all root freely under such conditions as are here specified. The cuttings should be kept rather dry till rooted. The atmosphere should be sufficiently moist to prevent the leaves flagging. This attended to, but little water will be wanted in the soil, till the somewhat fleshy stems begin to form roots. Pure sand over a base of broken potsherds or charcoal is the best rooting

medium. It is a mistake to mix soil with the sand for the rooting of such cuttings. All that the cutting needs is a moist porous medium to root into. Until the latter are formed, it neither needs nor can absorb food of any sort from the soil. More cuttings are killed by attempting to feed them before they are rooted than by any or all other means put together.

As soon as the cuttings have rooted or become plants, they may be potted into light, rich soil; that composed of equal parts loam, peat, and leaf-mould, with a sixth part of silver sand forms a good compost for tuberous Begonias in pots. Others use richer composts, but it is preferable to give all needful stimulants in a liquid state, and not till the plants need them. From this it will be seen that the best time to insert these Begonia cuttings is in the spring, or at least in an early state of growth of the plants. But as, where large collections of these magnificent pot, bed, or border flowers are grown, batches will be started at different times, so their propagation by cuttings may take place at any period when the growth is in the most favourable condition. Thus, choice seedlings may often throw up, or out, proper shoots for forming bulbs, and these should be selected, converted into cuttings, or rooted at any season when they can be procured. This is the more necessary with choice varieties, as very few Begonias can be depended upon to reproduce themselves quite truly from seed. For general decorative purposes, however, in beds or borders, seedlings are the easiest-raised, and where the strains grown are good they are sure to be of sufficient merit to produce brilliant effects. Even the element of novelty and the constant expectation of something superbly beautiful that is likely to turn up among the seedlings add a new interest and charm to their cultivation either out-of-doors or in.

D. T. FISH.

EDITOR'S TABLE.

It is needless to speak of the beauty of the various Hawthorns for indoor decoration or otherwise at this season, but the weeping variety of the common May has peculiar charms, owing to the graceful freedom of its long unbranched flowering shoots. They are quite different from the stiff branches of other kinds of Hawthorn, native or foreign. The weeping form, like the others, has lately been full of flower. Its long, pendulous, unbranched wreaths come in admirably for vases. And what a lovely tree when large! Some quite young standards we have lately seen were also among the most singularly graceful objects on long legs that can be imagined. It proves a valuable lawn tree when well established.

The old purple Cytisus, gathered at Mr. Joad's, reminds one that our garden practices sometimes give plants an aspect different from what they naturally have. Mr. Joad's plants are dwarf bushes collected by himself near Como. In our gardens generally it occurs as a standard or grafted bush. Perhaps it has been found to grow better in this way than in any other. In any case some will wish to have this purple Broom in its natural form as a rock bush.

In reference to the allusion (p. 539) to the Snowdrop Tree (*Halesia tetraptera*), Mr. Hopkins, High Cross, Framfield, sends an interesting note:—

"There is a fine specimen of this tree at Buxted Park, growing in the midst of a bed of Rhododendrons. It has a clean stem, 10 ft. in height, the bark of which is curiously netted, and white, Snowdrop-like flowers, which, when in perfection, are the admiration of all who see them. The tree in question has a bole $3\frac{1}{2}$ ft. in circumference at 4 ft. from the ground, and is from 25 ft. to 30 ft. in height, with a proportionate spread of branches. Buxted Park can boast of many uncommon flowering trees and shrubs that have attained sufficient size to indicate their true character."

Some Japanese Maples from Coombe Wood are, as might be expected, valuable for the table, their soft greens and browns and claret colours being beautifully seen in any way. They last well and relieve other flowers, but they are really well worth having for their own sakes, such is their beauty of form and delicate colours. The larger kinds of Maples also last well indoors, the Colchic one apparently not quite so well as others. There is such a large range of beautiful foliage in the family, that they deserve attention for indoor use at this season of their freshness as well as in autumn, when their colours are more brilliant.

The white Wistaria is indeed a noble plant, a good white, long in the raceme; in fact, the counterpart of the fine old Chinese

Wistaria, only pure white. Here is a shrub which we may really depend upon, and one worth any amount of attention. It seems rather slow to increase, but once planted out in a good place it grows freely like the other. We have never seen the old kind more beautiful than in the present season. It is pleasant to think of the pictures that may be formed by the judicious placing of this precious white Wistaria, which flowered freely at Coombe Wood during the past week.

Daphne salicifolia forms a shrub over 3 ft. high in Mr. Joad's garden at Wimbledon, and is full of little star-shaped, white flowers. It is a distinct and desirable kind not often seen. It is very hardy and free, and has the fragrance which seems the common possession of its race.

From Mr. Stevens comes an interesting *Viburnum* (*V. prunifolium*), but with shoots more like a Pear. He also sends some of those pretty white bush *Spireas* of which he has so full a collection, and which flower so well with him. They are very soft and pretty, but coming at a time when white-flowered bushes and trees are numerous, they are not, perhaps, taken so much notice of as they deserve.

A good many flowers are not desirable for their odour. One can easily imagine a case in which flowers occurring in great quantity, especially the flowers of trees, which are often so numerous, might become offensive, not to say unwholesome. Near a group of the Manna Ash in flower recently the whole air was full of heavy, sickly odour. If such things occur in the open air, evidently some flowers ought never to be brought into a room at all. So, too, the flowers of the *Ailantus* are said to give off an unpleasant odour where it flowers freely in the United States. Some consider this a drawback to its use as a street tree. The Manna Ash would be an unpleasant neighbour, too, notwithstanding its graceful plumes.

A free shoot of the graceful *Aotus* reminds one of the advantage in some cases of deviating from the common mode of training greenhouse plants. Mr. Joad has a house at Wimbledon arranged so that he can plant out greenhouse subjects and at the same time allow them every advantage in the way of light which they would have in pots. Amongst several so treated is this plant, which responds by growing admirably. It is trained in the freest and simplest manner under the roof, simply supported, in fact; the graceful shoots hang down and about in their own way, full of fragrance and beauty. As a stiff bush, spherical in shape, it would be poor indeed compared with this free plant. There is a great future for planting out in glasshouses subjects usually grown in pots, only the houses must be built to suit the planting. Most houses do not admit of that being done with advantage.

The old *Combretum purpureum* Mr. R. Greenfield finds one of the most valuable of plants for use in a cut state, both in the house and for the hair. Its sparkling racemes and divisions are welcome among the many fair flowers of the season. Mr. Greenfield has his stove half covered with this fine creeper, which seems to be nearly as useful in its colour as the *Stephanotis* among white flowers.

Speaking of *Stephanotis*, the only thing we have seen that has recently competed in effect with the pyramids of Horse Chestnut and the large snowy Hawthorns, Cherries, and white-flowering trees in our pleasure grounds or orchards is a remarkable house of this plant at Coombe Cottage, grown by Mr. Baker. On opening the door, so finely has the plant grown and flowered, that one gets the kind of snowy effect one sees in the Phoenix Park at the time of blossoming of the old Hawthorns. The shoots are dense, thick wreaths of flowers.

The hardy Lady's Slippers (*Cypripediums*), with their glossy yellow pouches and delicate green and brown-dotted divisions, last a long time in a cut state, and when closely examined are very beautiful. The foliage is also good. Once established, so as to grow freely, they are welcome adornments of the hardy plant garden. Several kinds are worth growing out of doors, though seldom established as healthy tufts.

The St. Bruno's Lily (*Anthericum Liliastrum*) is an exquisite

flower for the table, its pure, glistening, white, elegant form, orange stamens, and green-tipped buds rendering it worthy of the closest friendship. With it in a small glass two flowers of the Sage-green Columbine and a few of its graceful leaves make a little group as novel as it is charming, both being of a sweetness as good in its way as are their graceful forms and delicate colours.

The great St. Bruno's Lily (the large variety of *Anthericum Liliastrum*) is bold and effective, and comes as a well-grown example from Mr. Kingsmill, but for its perfect grace the ordinary form is, perhaps, the best, at least for intimate communion. The large form comes nearer in size to the Day Lilies, and though a fine plant, should never, as some large forms have done, supplant the old and true plant of the alpine meadows.

How much pleasure and how many beautiful plants one who loves them can secure round his home, and with the aid of his own hands only and in spare hours, is seldom shown so well as in Mr. Edwin Jackson's garden near Bangor, whence come, among many old friends, with the freshness of the Welsh mountain air upon them—the Edelweiss, perfectly grown; the scarlet *Mimulus* (coccineus), intense in colour; the Pyrenean *Erinus*, that is so happy on chinks in old walls and rocks, and one of the alpine plants that takes care of itself if it gets a chance; the Bird's-eye Primrose, well grown, with heads of bloom 2 in. across—a charming plant in this state on the rock garden; the rosy variety of the Rock Speedwell (*Veronica saxatilis*), a pretty rock plant, like the blue form; the handsome golden *Onosma taurica*; also the white and blue "Siberian Columbine," so called, which is only one of the many forms of our common Columbine which have fine names attached to them in gardens. Who will form a garden of the true species of the family, raised from seed gathered in their native localities or otherwise, kept true and distinct? Among no plants is there more disappointment, owing to their coming untrue from seed, or otherwise not answering to their descriptions. But what lovely plants, when one does get a glance at the pure forms of the finer species! Has any one much of the white form of the Rocky Mountain Columbine, which is talked of as very beautiful in the Utah mountain region?

A charming little bog miniature shrub is our own dwarf Cornel (*Cornus suecica*), which comes from Messrs. Dicksons, of Edinburgh—a Dogwood 3 in. high, with little, white, pink-bordered bracts around its umbel of flowers; a haunter of the mountain bogs and moors all round the northern world, and suitable for the little bog gardens made sometimes in connection with the rock garden, and also for their own sakes. After the brilliant colour of the alpine flowers, when not grown on dust-heaps or walls, it is pleasant to cool the eye among the green trailing plants that are happy in the rock bog garden, so to say. This may be distinguished from the bog garden for the larger plants, in which scarlet *Lobelias* and Royal Ferns and showy *Loosetife* give aspects of vegetation very different from that of our small friends of the moors and fringes of mountain rills.

Again the *Ixiolirion*, and this time from Messrs. Veitch, who say,

"The bulbs which produced the enclosed were sent to us last autumn by Dr. Regel, of St. Petersburg, under the name of *Ixiolirion tataricum*, which is doubtless the correct one. The beauty of the flowers speaks for itself, the delicate tints of blue and purple rivalling even those of the pretty *Chionodoxa*. The plant is certainly deserving of cultivation, but it is not new to British gardens, having been introduced, we believe, some thirty years ago, probably through the same channel as we received it."

The important facts about this plant are that it is hardy, a good addition to early blue flowers, quite distinct, and singularly interesting in a cut state. It only wants now an English name worthy of it, and this we invite Mr. Elwes to supply, as he is an "amateur" of hardy bulbs. However, the botanic name is not so hopeless as many others.

Miss Owen sends from Gorey a Stonecrop, the flowers of which have a singular resemblance to those of the Cape Pondweed (*Aponogeton distachyon*—English name our evil invention); also a handsome Mullein and the pretty little American Bluets, a name that may puzzle our friends, but a genuine English name,

though certainly, and happily, not a translation. Miss Owen says of them—

"I enclose a flower of *Verbascum tauricum*, as I fancy it is not a common one, and of *Sedum Beyrichianum*, which seems to be less common than it deserves to be considering its pretty Aponogeton-like flowers. I also enclose flowers of *Armeria cephalotes alba* and the pale pink *A. Welwitschi*, and *Houstonia serpyllifolia*, though I fear the beauty of its fragile blue flowers will be over before they reach London. [Came fresh and lasted well.] The blue Daisy is flowering as freely as the common one this year, though it had no protection in winter. I must mention one more plant, though it is not easy to choose amongst rockery plants at this time of year, viz., *Genista hispanica*, sent to us last year by Messrs. Rodger, McClelland & Co., as bright as a Furze bush, and hardly 1 ft. high."

Miss Owen further says of a fine bed of the Garland Flower (*Daphne Cneorum*)—

"In the south of the Co. Wicklow it has been one mass of flowers this May, scenting the air everywhere near it. It is 18 ft. long by 10 ft. It was planted about ten years ago in good garden soil mixed with peat. Every autumn the bare stems are earthed up a little with peat, which is all the care the bed requires."

No doubt there are many districts in the north and west still arrayed in the beauty of the Polyanthus, but without going so far, we have a very fresh box of them from Bedfordshire. Just think of the length of time in the pleasantest part of the year during which this brave plant in many forms adorns our gardens in all weathers and on all soils. No care can be too great for it, and it deserves to be grown well and placed with taste and thought. Those from Bedfordshire are nearly all Hose-in-Hose, or flower above flower.

Many times as we have to admire in the gardens of cottagers the bold and handsome flowers of the many double varieties of the common Daisy, we have not before had a jar of white ones, a pleasure for which we are indebted to Mr. Dean. His double white Daisy (*Virginia*) is a very pretty Bachelor's Button indeed. Mr. Dean says:—

"We have called it a bouquet Daisy, because it has such long stalks, and the flowers are so white and double. Some of the bouquetists like it to elevate above the usual even surface of bouquets, a prominence that could not well be given to larger flowers. It is, however, in other respects a most useful white flower. A small bed of about eight square yards has produced blooms in thousands, and this too in the open sunshine where it was hot and dry; the proper place for it is beneath over-hanging trees, where there is shade and the plants are kept cool. In such a position the plants would probably bloom for three months without cessation. It would make a useful plant for market-growers, as, owing to the long stems, the flowers will bunch admirably."

Among the various interesting plants from the College Gardens, Dublin, comes the very graceful Speedwell (*Veronica Hulkei*). This has the neat and pretty blooms of the Rock Speedwells, with some of the grace of that rare and beautiful Orchid, *Ionopsis paniculata*, forming elegant panicles of pale lilac and white flowers. Mr. Burbidge says it is hardy at Dublin, and his examples of it are good, but indoors it is freer and bolder in the flowering shoots. It is worth while growing it in both places, even where it lives out-of-doors. He also sends beautiful blooms of the Nepalese *Meconopsis*; most of his plants, however, are referred to elsewhere in his interesting "Notes from Dublin."

The Crown Daisy (*Chrysanthemum coronarium*) is a very handsome annual which has run into a number of single and double forms in our gardens. The ordinary single form of it is a handsome plant with flowers nearly 3 in. across, and with half the length of the rays as well as the centre yellow. Mr. Kingsmill sends this from seed or plants recently gathered by him in Algeria. This ordinary single form is well worth keeping pure.

The first Lily comes from Mr. Ware in the shape of the brilliant *Lilium tenuifolium*, a bright herald of a noble company that will remain with us now off and on for about five months till the end of October; indeed, some of them are often seen later. So varied and fine in form and colour are they, that a fair garden might be formed with them alone if well grown and tastefully placed in relation to the other permanent occupants of a glade-like garden.

Camassia Fraseri comes from various gardens. It is an elegant plant, like a large *Scilla*, very delicate in colour, but by no means so bold or handsome as the old *Quamash*, which we have so much recommended, even for the sake of its appearance indoors.

The American Crab (*Pyrus coronaria*), figured from Cambridge in *THE GARDEN* last year, is now in flower, coming later than the other wild Pears, and for that reason peculiarly valuable, as well as for its Violet scent. It deserves more attention from those caring for flowering trees. The only fault of these is that they come in crowds altogether in early summer, leaving us rather bare afterwards, whereas amongst hardy plants we have a rich succession. All trees that bloom later than the host that bloom at the end of May or early in June are more than usually valuable.

A most welcome batch of semi-double Roman *Ranunculi*, of which the yellow and sulphur kinds—large flowers, showing their black centres distinctly—are very beautiful. They are also fragrant. With them comes a curious and large series of scarlet double *Anemones*, wild and picturesque looking. They seem to be forms of the scarlet *Windflower* (*A. fulgens*), but not the old *Peacock Anemone*, which was much more regular in form. These plants are from Ireland, which is looking up in the matter of hardy flowers. There, indeed, some of the best never died out, and many a good thing, Mr. Burbidge says, is still to be found in old gardens in Meath. The sender, "St. Bridgid," writes:—

"While reading in *THE GARDEN* descriptions of the floral offerings from various parts of Ireland laid on the editor's table, I do not see why Howth should be left out in the cold of oblivion; therefore, I send from her sunny side some clusters of the yellow *Banksian Rose*, now climbing in its own wild will over the garden wall. The *Anemones* are my own seedlings, not nearly as fine as usual, being kept back by the long-continued frosts, and flowering at present under a scorching sun without any sustaining moisture, for what rain visited us in May was quickly borne off by the sea breezes. The 'Mellidores' are grown from seed also. They are, I believe, Roman *Ranunculi*; their Italian name tells either of their golden hue, or of the bees' love for them. Like Dresden China, is, I think, the first thought they suggest."

One friend sends a box of *Woodruff*, which we certainly cannot introduce as a novelty, but which is as charming in its way as any exotic beauty of the year, and a plant for which one should always find a place. A spreading colony of it covers the ground neatly, and requires no care; indeed, such plants should be grown, if for the reason only that they cover the naked borders which unhappily form the ground line, and spoil most gardens.

Double *Wallflowers* are now common enough, but one doubts if they are as good as the old bush-like kinds which one used to see, and which were more compact in the flower than the large soft-looking sorts now grown. Messrs. Dicksons & Co., of Edinburgh, send us what they describe as the old yellow double-bush *Wallflower*, very fragrant and very neat. The name bush *Wallflower* reminds one that these old double kinds used frequently to take that form, and keep it for a number of years on a dry border.

A noble bloom of the great spotted *Iris susiana* comes from Mr. Ewbank. This is a most strange and enormous flower, of which we cannot hope to give an idea. The falls alone are $3\frac{1}{2}$ in. across, and $4\frac{1}{2}$ in. long. In warm and chalky soils in Southern England it seems to be quite free as a hardy plant. Mr. Ewbank says, "If there is any truth in the old adage, that 'the proof of the pudding is in the eating,' then I am sure that *Iris susiana* likes to be taken quite out of the ground, and laid upon the greenhouse shelf for two or three months after it has blossomed. This has been a little questioned, but there is no doubt about it at all to my mind. *Gentiana pumila* is very interesting, and a good contrast in point of size to the other."

A most brilliant collection of well-grown *Ixias* comes from Mr. C. Smith, of the Caledonia Nursery, Guernsey, a collection which is so brilliant after its journey as to make one desirous to see these Guernsey *Ixia* beds in all their freshness. Most singular is the ever-welcomed green-flowered *Ixia* (*I. viridiflora*), unique

with its copperas-green spikes of flowers, fully 7 in. long, bearing a score or so of blossoms all looking one way like a spike of *Oat grass*. The colours of the other forty sorts sent are very varied, but they naturally fall into about four series of tints. Nearly all are forms of *I. maculata*, in which the flowers have a white or yellow ground striped with shades of magenta. Then there is the charming *I. speciosa* in numerous variety, all partaking more or less of a rich rosy tint. The best named sorts in the latter series are *Lady Slade*, *Rosea plena*, *Achievement*, *Rosea multiflora*, and *bucephalus major*. Of the white and striped sorts the brightest are *Duchess of Edinburgh-Lavinia*, *Wilhelmina*, *Pretorius*, *Evelina*, *Aspasia*, *Isabella*, *Cassandra*, *Titania*, the latter a lovely mauve. The yellow and orange sorts are very numerous, the finest being *Marvellous*, *Titus*, *Virgilus*, *Argus*, *Triomphe*, *Aurantia major*, *Sunbeam*, *Magnifica*, *Model*, and a beautiful form with a crowded spike of flowers, yellow inside and delicate violet-purple outside.

Some fine sprays of the elegant *Calochortus pulchellus*, from Mr. Fish, are most attractive in a cut state, the singularly-shaped nodding blossoms of a bright canary-yellow being thus seen to good advantage.

Some one has been kind enough to send a monstrous *Buttercup*, but we are not fond of monstrosities. The flowers of the ordinary *Buttercup* that grew on the same plant, however, were as welcome as any that have come with their burnished flowers and grateful delicate odour. By the way, several of the exotic *Buttercups* are valuable for cutting, and last a good while, as, for example, the *Illyrian* and *Grass-leaved* kinds.

NOTES OF THE WEEK.

Pentstemon Scouleri.—This is a very handsome and hardy woody kind, with a flower very fine in form in the true sense of the word; the colour is a good purplish-lilac and the flower bold and free. That it is very hardy is proved by its passing so well through the past two winters in Mr. Joad's garden at Wimbledon, where it was recently in flower. It is a good kind for the rock garden and for borders in warm sandy soils, not that such are necessary for its existence, but it seems to flower more freely on them than on others.

Plaited Snowball Tree (*Viburnum plicatum*).—The merits of this fine shrub are surely not much known, or it would be more extensively planted than it now is; it is as handsome as any of the species, and as hardy as the common *V. Opulus*. In several gardens about London, and more particularly in the Coombe Wood Nursery, it forms one of the principal attractions. In the latter there are some specimens of it 6 ft. or 8 ft. in height, covered completely from top to bottom with dense clusters of flowers, which at first are a greenish-white, then gradually become perfectly white. The singular plaited surface of the leaves renders this very distinct from all the other species. When planted against a wall the flower-clusters whiten earlier, and it is really a highly desirable shrub for such a position. It is also a capital plant for growing in pots in green-houses, in which early flowers are welcome.

Tartarian Ixia Lily (*Ixiolirion tataricum*).—One of the showiest and at the same time most uncommon plant in flower at the Hale Farm Nurseries, Tottenham, is this bulbous plant, which is now being brought into prominent notice. In a warm position there is a bed of it a perfect mass of bloom. The colour consists of various shades of purple, from the palest to the deepest, apparently changing with the age of the flowers. As many as six flowers are produced on slender stems, which rise about $1\frac{1}{2}$ ft. high, and wave about gracefully. Some maintain that *I. montanum*, *I. tataricum*, and *I. Ledebouri* are one and the same plant, but the distinction is very palpable when the plants are seen growing side by side, and the Tartary plant is much the finest, though the others are a much deeper colour. There is a difference, too, in the size of the flowers as well as in the periods of flowering, which for garden purposes constitute important distinctions. A coloured plate of *I. Pallasi* was given in *THE GARDEN*, Vol. XVIII., p. 382.

The Bastard Palm (*Melittis Melissophyllum*) is a native plant, better deserving of a place than many hardy exotics, the flowers being freely produced and handsome; it grows well in any soil, and will be quite happy in a copse or on the fringe of a bed of shrubs. We were struck with the beauty of a plant of it at Mr. Joad's lately, and it keeps well and looks well in a cut state in some

obscure corner, suggestive of the half-shady spots it likes to grow in. The larger and handsome form is alluded to here.

The Pearl Bush (*Exochorda grandiflora*).—None of the Rosaceous shrubs in the Kew arboretum are so attractive as this, of which there is a very fine example now in full bloom. The snowy whiteness of the large blossoms and the profusion with which they are borne, place it in the first rank among white-flowered shrubs, and its perfect hardiness and fine spreading habit of growth add greatly to its value. It is yet an uncommon shrub in nurseries, though few shrubs are more valuable.

The English Lady's Slipper (*Cypripedium Calceolus*).—Mr. Joad finds this plant extremely easy to grow. Inserted in borders in any way, it seems to increase and flower freely. It is a beautiful native plant now extremely rare, which almost anybody would be proud to have in their gardens. Mr. Joad's success may perhaps be accounted for by getting healthy young plants to begin with, inasmuch as we have frequently noticed that the roots of hardy Orchids are sometimes sold in a dead or dying state.

The Silky Rose (*Rosa sericea*).—Of this beautiful Himalayan Rose, a plant against the herbaceous wall at Kew is now a mass of snow-white bloom. It is scarcely hardy enough to plant as a standard in the open, but for covering a wall it is very desirable, and, being of neat growth, it does not require much attention as regards training or nailing.

Lily of the Incas (*Alstroemeria Pelegrina*).—This is one of the showiest of the *Alstroemerias*, and now, unfortunately, one of the rarest in cultivation. It is dwarfer in growth than the commoner *A. aurantiaca*, and the foliage is a deep shining green. The flowers are produced in terminal loose clusters, and are between 2 in. and 3 in. across; the three outer petals are a delicate pink, the inner of the same hue, but heavily blotched and streaked with dark purplish red. They expand widely, and are, therefore, very showy. Mr. Joad grows it very successfully planted out in free soil in a cool airy house; though it is sold as a hardy plant, it is not really so, at least in the neighbourhood of London, and never thrives satisfactorily when so treated.

The True Senecio speciosus.—This is quite a distinct plant from that which has been distributed lately under that name, and which appears to be *S. concolor*. *S. speciosus* is by far the finer of the two, having larger and more highly coloured flowers, and, moreover, much more floriferous. *S. speciosus* is covered with a dense white woolly material, which gives, especially to the flower-clusters, a cobwebby appearance. During the week we have seen a plant in flower of *S. speciosus* side by side with *S. concolor*, and the distinction is very obvious. A particularly fine plant of *speciosus* is now attractive at the Hale Farm, Tottenham, planted out in a cool house.

Hardy Lady's Slippers at Home.—Mr. F. Goldring, writing from Albany, N.Y., says, "We have some beautiful hardy Cypripeds in flower just now, such as *C. arietinum*, the singular Ram's-head Lady's Slipper, *C. acaule*, *C. pubescens*, *C. parviflorum*, *C. candidum*, a little gem, *C. spectabile*, and the lovely white variety of it, *album*. *C. spectabile* grows in exposed swamps near here, pubescens on stiff clayey banks in the woods, *acaule* in decayed leaves generally at the bases of trees, and *parviflorum* in swampy places, but it increases rapidly in sandy loam. These hints may probably be of value to your English cultivators, who as a rule place all under the same treatment."

Phlox pilosa.—This is one of the rarest of the cultivated species of *Phlox*, though there is a spurious kind sometimes sold for it. The true plant is very pretty, and reminds one at once of the annual *P. Drummondii* by its leaves, habit, size, and colour of the flowers, which are a deep rose and borne in rather large flat clusters. The plants we saw in flower at Mr. Ware's nursery at Tottenham the other day were about 1 ft. in height and wholly covered with dense soft hairs. Another rare species is the true *P. bifida*, a very elegant plant, the leaves of which are narrow and the corolla cut into very narrow segments; the colour is a bluish purple. Of this species there are now some plants in flower in the garden at Oakfield, Wimbledon Park.

Sarmienta repens.—For growing in suspended baskets, pots, or pans, this charming little Chilean plant forms an extremely desirable object. The small red urn-shaped flowers, reminding one of those of *Mitraria coccinea*, are produced numerously on the slender trailing stems which hang gracefully over the sides of the pot. It requires to be grown in a cool moist atmosphere, such as that best suited for cool Orchids, and planted in peaty soil. Flowering plants of it may now be seen in one of the cool greenhouses at Kew.

Tovaria oleracea.—This is a very striking Himalayan plant, closely allied to the Solomon's Seal. Like it, it has single arching stems, but, instead of the flowers being hung all along the under sides of the stems, they are collected into a cluster at the end. They are pure white, and when well grown the clusters spread as wide as 6 in., rendering the plant very showy. It should be grown in a peaty soil in a partially shaded position, and supplied with abundance of water in the growing season. It is now in flower at Kew. Though not so fine as in previous years, it shows the character of the plant well. It is perfectly hardy.

Satyrion carneum.—The *Satyrions*, terrestrial Orchids, natives of the Cape of Good Hope, are seldom met with in cultivation in a vigorous or even healthy condition, beautiful as they all are when in flower. We saw the other day at Oakfield, Wimbledon Park, a fine flowering plant of the lovely *S. carneum*, one of the finest of the species. It was about 1 ft. in height, and had a stout, erect stem, furnished below with several broad leaves of a deep green colour and of thick texture. The flowers are singular in form, the upper sepal leaning over the others in a hood-like manner; the colour is a delicate rosy-pink, and the blossoms, being borne plentifully on a dense spike, render the plant highly attractive. Mr. Joad grows it, as well as *S. aureum*, in pots in a cool and airy greenhouse. Though nearly hardy, these Orchids rarely succeed satisfactorily in the open air in our climate.

Pyrus coronaria.—The great value of this rarely-grown North American tree consists in its flowering after most of its congeners are over, and, therefore, on that account alone it should be planted extensively. Just now it is in full flower in the Kew arboretum, and is conspicuous in the collection, as there are few, if any others, in flower. Its crimson-tinted buds, and its large, saucer-shaped blossoms, produced in clusters, are really very attractive. It was figured a short time ago in *THE GARDEN*, from specimens obtained from a fine tree of it that grows in the Botanic Garden at Cambridge.

A Noble Spiderwort (*Cochleostemon Jacobianum*).—In one of the stoves at Kew (No. 9) there is an exceptionally fine example of this plant bearing some half dozen spikes of flower. These proceed from the axils of the leaves, and consist of about a dozen or so of singularly shaped blossoms, the outer parts of which are a purplish mauve, the inner a rich deep violet-purple, tints which render the plant very attractive. Apart from the showy flowers, however, it is really a noble fine-foliaged plant, for the leaves are some 6 in. in breadth and 2 ft. or 3 ft. in length, arranged in a vase-form manner. It is a native of Ecuador, and has been introduced some time, but it does not appear to be generally cultivated, a circumstance probably due to its being difficult to procure, though now it is grown numerously in some nurseries, notably in that of Mr. B. S. Williams, at Upper Holloway.

Pyrus pubens.—This neat flowering shrub or small tree is now attractively in flower in the Coombe Wood Nursery. Its flowers are about the size of those of the Hawthorn, and are produced in similar clusters; they are white, while the anthers are deep red. It is really a variety of *P. arbutifolia*, a native of North America, and in the Kew arboretum there are now two or three varieties, besides the typical species, in flower. The variety *pubens* differs from the type in having much narrower leaves, which are, moreover, downy on the under surface. Another variety named *serotina* is similar to *pubens*, but seems to be of larger growth, and has the leaves downy on both surfaces. Another called *erythrocarpa* is readily distinguished in autumn by its red fruits. All these varieties, as well as the type, have been cultivated for many years, though now seldom seen; yet they are desirable, as flowering when most other species of *Pyrus* and allied genera are over. They are of dwarf growth, but have a pretty effect when grafted on high standards of some of the strong growing kinds.

Erigeron aurantiacum or pulchellum is a very distinct colour among the Fleabanes, or indeed among the whole range of cultivated Composites, as few have flowers like this of a bright orange-red hue. It is a pretty plant when well grown and flowered, though as yet it is not much known. The flower-heads are about 1 in. in diameter, and being on long stalks are useful for cutting. During the week we have seen it in flower at the Hale Farm Nurseries and other places.

Cacti in Flower.—If the gorgeous blossoms of the Cacti and succulent plants could be more often seen it would tend greatly to extend their culture and raise them in public favour, but there are but few places where they can be seen in anything like fine condition. One of the finest private collections in this country is that in Mr. Peacock's garden at Sudbury House, Hammersmith, which occupies several owing to houses. These at the present time are highly attractive by the many plants in flower. The showiest are

the large-flowered *Phyllocactuses*, especially *P. crenatus*, with large white flowers, and a bright scarlet variety of it, *P. multiflorus*, is remarkable for the profusion of its large bright vermilion flowers; as is also a fine hybrid named *J. T. Peacock*, which has the peculiarity of bearing flowers quite at the base of the stem. Another gorgeous hybrid is of American origin and named *C. M. Hovey*. It is in the way of *Cereus speciosissimus*, but the flowers are much brighter in colour, and appear to be overlaid with a satiny lustre. Then there are several *Mammillarias* in flower, notably *sempervivoides*, with numerous small rosy cups on the prickly globular cushions, and *Pesciciana*, with flowers even brighter than the last. *Echinocactus tabularis* is extremely handsome; the flower is larger than the plant, measuring some 3 in. across, and of an inverted bell shape; the colour is a sulphur-yellow, and the tuft of stamens of a lighter hue. These are but a few of the numerous beautiful and interesting Cacti in flower in this rich collection.

Habranthus pratensis fulgens is one of the most brilliant plants in flower at the present time at the Hale Farm Nurseries, Tottenham. It is a bulbous plant, perfectly hardy, having withstood the past few winters with impunity. The flower-stems are stout and erect, about 1 ft. in height, and terminated by an umbel of flowers about 3 in. across, of the brightest scarlet hue imaginable, and feathered here and there at the base with yellow. Such an attractive hardy plant as this is of great value, and when it becomes commoner it will doubtless be much sought after. It is a native of South Chili, and thrives here in a strong loamy soil in a thoroughly drained border or rockery.

Maize-leaved *Pitcairnia* (*P. maifolia*).—This is a very attractive Bromeliad, remarkable for its long spike of brilliant scarlet blossoms and broad, handsome light green foliage, which keeps in good condition throughout the year. The leaves elegantly recurve over the sides of the pot, and so form an excellent object for placing upon pedestals, or for table embellishment. The slender flower-stems rise some 2 ft. or 3 ft. high, and the blossoms continue in perfection a long while. It is now beautifully in flower in Mr. Peacock's garden at Sudbury House, Hammersmith.

Calochortus Benthani.—This extremely rare bulbous plant from California is among the most beautiful of a fine genus. It is in the way of the commoner *C. elegans*, or *Cyclobothra cœrulea* as it is often called, but the flowers are somewhat larger and of a bright yellow colour. The inner surface of the petals, as in *C. elegans*, is thickly beset with short hairs and are very conspicuous. It is now finely in flower at the Hale Farm Nurseries, Tottenham, where also are *C. elegans*, *Maweanus*, *C. pulchellus*, and *C. lilacinus* beautifully in flower. At Kew, *C. elegans* Tolmiei, a large and handsome variety, is now in flower in the herbaceous department.

Cytisus biflorus.—Messrs. Dicksons, of Waterloo Place, Edinburgh, send us specimens of this full of lemon-yellow flowers, which have been in fine condition for about three weeks on a wall and on the rockery. It is certainly perfectly hardy, as last winter's frost has not touched it, while many of the others have been almost destroyed. Messrs. Dicksons have had it in their collection for some forty years, and they always propagate it by grafting on the *Laburnum*. It is a plant which should be more grown than it is, and as no doubt it would be if better known.

Iris susiana.—One of the strangest plants in cultivation is flowering remarkably well this season in the open borders in Mr. Ware's nursery, Tottenham, and is now in perfection. The huge blossoms, so curiously shaped and so strangely marked, attract every one. The plants are growing in rather stiff soil in a fully-exposed situation, conditions which apparently suit this reputedly miffy subject.

Thermopsis montana.—From Mr. Joad's private collection and Mr. Ware's nursery comes a very interesting plant like a good yellow Lupine. Many will remember the old *Thermopsis fabacea*, which, somehow, never fulfilled the promise of its growth or repaid for its place. *T. montana*, the new kind, has a long, handsome, and graceful habit. Flowering at the same time as the perennial Lupine, it will be found useful for association with that and other border plants of the season.

Mr. Dominy.—We learn with much pleasure that a subscription is opened to present a testimonial to the veteran and widely-esteemed late superintendent of Messrs. Veitch's nursery at Chelsea. Sir Trevor Lawrence, in calling our attention to the matter, writes—"Mr. Dominy has now retired definitely from the service of Messrs. James Veitch & Sons, after being with them more than thirty-five years, carrying with him the esteem of his employers and of all who have had to do with him. I need not enlarge on Mr. Dominy's high personal character, on his industry, or on his courteous civility and attention to all. But his special knowledge and skill are well

known, and have been a great help to nearly every Orchid grower in the kingdom. Mr. Dominy was the pioneer of the hybridisation of Orchids, and his skill has enriched our houses with many beautiful hybrids. It is not desired to do more than give Mr. Dominy a well-earned mark of the gratitude and esteem which Orchid growers feel for him. Several subscriptions have already been promised, varying from £5 5s. (the maximum fixed) to 10s. 6d., and the following gentlemen, to whom I have only as yet applied, have promised their co-operation, viz., Rt. Hon. J. Chamberlain, M.P., W. E. Brymer, Esq., M.P., Sir Henry Peek, Bt., M.P., Lord Rendlesham, M.P., and many other well-known plant lovers and Orchid growers." Subscriptions will be received by Sir Trevor Lawrence, 57, Prince's Gate, or at the London Joint Stock Bank, Pall Mall, S.W.

We have received, just when going to press, Messrs. Veitch's "Manual of the Coniferae," and consequently are unable to review it this week. It will, however, shortly be noticed at length by an experienced planter.

LATE NOTES AND QUESTIONS.

Rules for Correspondents.—All communications for insertion in the paper, and all questions and answers should be addressed to the EDITOR. Letters relating to subscriptions, advertisements, and other business to the PUBLISHER. In every case the name and address of the sender is required, in addition to any nom de plume to be used in the paper. QUERIES must be written clearly and concisely each on a separate piece of paper and on one side of the paper only. NAMING PLANTS.—Four plants, fruits, and flowers only can be named at one time, and this only when good specimens are sent. We do not undertake to name varieties of florist flowers, such as *Fuchsias*, *Geraniums*, *Azaleas*.

Arum Lilies.—What should I do with these just out of bloom to secure fine flowering plants next season? Should I sink the pots in coal ashes or plant out in the ground? or lay the pots on their sides, let the roots rest and dry, and report when young shoots commence from the bulb again?—ST. BRIDGID.

Violas and Pansies.—These are now so much alike that it is difficult to distinguish the one from the other. Cannot there be some rules laid down by which one would know where *Violas* end and *Pansies* begin? In fact, as both are *Violas*, where lies the difference between the two?—BETA.

Wireworms.—My Mushroom beds are eaten down completely by these and centipedes that somehow get into the building where they are. Can anyone tell me how to get rid of them?—G.

Books.—R. P.—"Familiar Garden Flowers" and "Familiar Wild Flowers" (Cassell, Petter, & Galpin) may possibly answer your purpose.

Miss O.—The insect had escaped before the box reached us.

Names of Plants.—*E. Molyneux*.—2, *Diplacus glutinosus*; 3, *Campanula glomerata speciosa*; 4, *Doronicum Pardalanchæ*.—*Mac*.—1, *Ajuga reptans*; 2, *Lamium purpureum*; 3, apparently *Lychnis diurna*.—*Guer*.—*Orchis laxiflora*.—*G. J.*—1, *Aster coriaceus*; 2, *Iris sibirica*; 3, *I. graminea*.—*S. K.*—1, *Cerasus Padus*; 2, *Lycium barbarum*; 3, *Pyrus arbutifolia*; 4, *Amelanchier vulgaris*; 5, *Hydrophyllum canadense*; 6, *Claytonia perfoliata*.—*M. A. N.*—A species of *Liparis*, but send when fully in flower.—*G. G.*—*Coronilla Emerus*.—*J. B. C.*—*Orchis mascula*.—*J. M. K.*—*Pyrus arbutifolia*.

WATERING IN DRY WEATHER.

I WOULD recommend "Dorking" (p. 536) not to have much watering done. I have had about 19 years' experience on dry soils, and have always found that watering only makes the ground harder and more difficult for the young plants to get through. If the soil is kept moved at the top there will be moisture underneath. I often lightly rake the surface after heavy rain if the crops are not through; if they are, then I use the hoe as often as possible, and very little watering is required. In the case of fruit trees, a good syringing would do them good if the weather is warm, but we have yet very cold winds and frost at night.

J. ATFIELD.

— By all means water is my advice to "Dorking." If Nature is always to have her way, then the major part of the cultivator's occupation is gone. Vegetable as well as other seeds like a dry bed at first, but if the bed continues dry the seeds lie dormant till rain comes; and Nature can generally afford to wait, while we cannot. Fruit trees, too, on a dry soil and during a long spell of drought would be very much benefited by a good soaking of water. Few things would do more to set a crop of fruit. In dry springs the drought often slays more embryo fruit than the frost. As for seeds with their scant covering of soil, they should have both shade and water if wanted in a hurry or in fair time; and affording them both in moderation we are but copying Nature in her best moods and practice. She sows her seeds in the autumn, keeps them cool and moist all winter, so that the seeds are ready to take the advantage of the first genial days of spring to burst into growth. Perhaps our dry and safe storage of seeds throughout the winter in bags or drawers betters Nature's instructions. But shortly after sowing, the dry regimen for seeds should cease and a moist bed should succeed to it, so as to foster and encourage germination and growth.

—D. T. FISH.

— "Dorking" should certainly water copiously all seed beds and transplanted crops; not only should he water them thoroughly

and then wait till the soil has become like powder, but he should endeavour to keep the soil moist at all times. After one or two perfect waterings much less will suffice to keep the crops in growing condition. If he has the advantage of standing water, or a river, so much the better for the crops, as they will not then be subjected to the check which well water, or even water from deeply-laid pipes, causes growing vegetation. If he has no hose or pump, or other appliance, and can dip for the water, it is a good plan to form shallow ditches between the crops, stamp and smooth them nicely, and by this means guide the water wherever it is wanted. Then by means of scoops it can be thrown out of the trenches over the whole surface. Of course such canals must have but a very slight fall to any point. This is far more economical than hand-watering with pots, besides being far less laborious, the water running to the point wanted, and being there distributed without treading the ground between the rows. In giving water to very small seeds and seedling plants it will be quite necessary to use the watering-can with a rose, at any rate in the earlier stages of growth.—SYLVESTRIS.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.—MAY 28.

THE annual summer exhibition of plants and flowers, held under the auspices of the Crystal Palace Company, took place at Sydenham on Saturday last, and was quite up to the usual standard of flower shows held there of late years. In certain classes indeed there were some remarkably fine examples of good culture. As many of the exhibits shown this occasion were, however, at Regent's Park, we need not again advert to them. The brightest part of the show was, as usual in May, the

Azaleas, which were shown numerously and in wonderfully fine condition, especially in the amateurs' classes. Mr. A. Ratty, who makes a speciality of the Azalea, was the largest contributor, but here he was placed second in the class for nine plants with apparently the same collection that won him the first prize at Regent's Park last week. Mr. Child's winning nine were grand pyramids of blooms and all uniform in size, and perfect as regards freshness. They comprised *Model*, *Concinna*, *Elegantissima*, *Iveryana*, *Magnet*, *Criterion*, *Duc de Nassau*, *Lizzie*, and an uncommonly fine *Barclayana*. In Mr. Ratty's collection was an exceptionally fine example of *Souvenir du Prince Albert*, a superb pyramid of salmon and white-tinted bloom; also of *Stella*, *Mad. de Cannart d'Hamale*, and *Juliana*, all of which were grown in 12-in. pots. These were the only two collections in this class. In the nursery-men's class was a good group from Slough, in which we noticed the lovely *Cedo Nulli*, *Comtesse de Flandres*, *Reine des Fleurs*, and *Estandard de Flandres*, one of the finest of its colour. The other collection was decidedly poor, as were also the two groups of six plants in the nursery-men's class. Mr. Turner and Mr. Ratty showed fine collections of 18 plants, in pots, not to exceed 9 in. across. Those of the former were superbly flowered, and included some uncommon sorts, such as *Madeleine*, a lovely semi-double white, only recently distributed; likewise *Mons. Thibaut*, *Jean Vervaene*, one of the best of the salmon tinted sorts, and *Mrs. Turner*, a beautiful pink, with an abundance of large and finely-shaped flowers. The old *A. sinensis*, with its rich yellow flowers, was also shown in this group. Mr. Ratty's plants were not so uniform as regards size, neither did they represent such new kinds, but in other respects they were excellent. The other collection consisted of small plants.

Fine-foliaged Plants.—These constituted another special feature of the show. We allude more particularly to the wonderfully fine plants from Mr. Warren's garden at Handcross Park, Sussex. These took the premier prizes in the fine-foliaged class, as well as in those for *Crotons* and *Dracænas*. Among nine fine-foliaged plants, Mr. Rann had grand specimens of *Croton interruptum*, finely coloured and of huge dimensions, *C. variegatum*, and *C. Wisemannii*, also fine; a healthy and vigorous *Areca sapida*, *Thrinax elegans*, *Cycas circinalis*, with a young plume of foliage, and an excellent plant of *Pritchardia pacifica*. The other collection in this class from Canon Bridge's garden contained fine plants of *Areca pubescens*, *Cycas revoluta*, *Dieffenbachia Bausei*, and *Phormium Colensoi variegatum*. Mr. Rann's nine *Crotons* were a long way in advance of the other two collections shown. They comprised grand plants of *C. Andreanum*, *Hendersoni*, *angustifolium*, *Prince of Wales*, *multicolor*, *Challenger*, *volutum*, and *Youngi*, all of huge size and perfect as regards colouring and vigorous growth.

The other collections, though inferior to the preceding, showed skilful cultivation, for though the plants were small they were well coloured and vigorous. The class for *Dracænas* represented three collections, neither of which included very large plants. The best were *Dracena Goldieana*, *Rex*, *Gladstonei*, *Thomsoni*, *Majestica*, *Bausei*, *Renardi*, *Reginæ*, and *Robinsoniana*, all finely coloured. In

the other groups were *D. Vivicans*, *Baptisti*, *Recurva*, *Anerleyensis*, and *Salmonea*, all fine sorts for general cultivation. The nursery-men's fine foliaged plants comprised three collections.

Orchids were somewhat numerous, but by no means so finely represented as we are wont to see them at other London shows; indeed, with the exception of the first collection, from Mr. Child, of Ewell, the competition in the amateurs' class was quite of a local character. The finest plants in the best collection were *Vanda suavis*, with nine flower-spikes, and *Aerides Fieldingi*, with four spikes, having fourteen branches. Both of these plants were exceptionally fine specimens, and exemplified very skilful culture, but the other plants in the collection were but of ordinary quality. In the other collections were *Oncidium concolor*, shown extremely fine in masses; *Odontoglossum polyxanthum* (a new species), bearing two spikes; *Cattleya citrina*, with ten flowers; *Cattleya labiata*, a very fine variety; *Dendrobium marmoratum*, a pretty Assamese species, in the way of *D. transparens*; *Phalenopsis Luddemanniana*, *Dendrobium Bensoniæ*, *D. Dalhousianum*, &c. In the nursery-men's class there were two collections, one from Mr. B. S. Williams, the other from Mr. James. The former was first, which included fine examples of *Cypripedium barbatum superbum*, *Oncidium concolor*, *Epidendrum vitellinum majus*, *Lælia purpurata*, *Cattleya Mendelli*, &c., all in excellent flowering condition.

The stove and greenhouse plants were of the usual character, and these have been, with one or two exceptions, alluded to in our last week's reports. The Heaths, as usual, were poor, neither of the collections shown being either uniform or representative. Roses were conspicuous by their absence, but their place was well filled by a fine collection of Clematises from Messrs. Jackman & Sons, Woking, a similar one to that shown at the Regent's Park show last week. *Pelargoniums* were poorly represented, the only creditable collection being the nine fancies and shows from the Slough Nurseries, which was remarkably uniform and well flowered, and comprised some of the leading kinds. *Calceolarias* were in strong force, some half-a-dozen really fine collections being shown, all remarkable for the variety of colour, large size, and fine form of the flowers, indicating the best strains, that from Messrs. Dobson, of Isleworth, who are noted growers of the *Calceolaria*, being exceptionally fine. There were two collections of *Tuberous Begonias*, that from Messrs. Laing, who are the foremost growers of the flower, being the finest. It included some finely-grown plants of such fine kinds as *Lady Hume Campbell*, *Pollie*, *Hon. Mrs. Brassey*, *Ann Laing*, *Devoniensis*, *Sir Stafford Northcote*, and *Exoniensis*, all among the finest sorts. In the other collection, from Mr. Coppin, the most noteworthy were *Rêve d'Or*, *Flame*, *W. E. Gladstone*, and *Paul Masurel*.

The groups arranged for effect were four in number; the first prize was awarded to an arrangement by Messrs. J. Peed & Son, which consisted of fine-foliaged and flowering plants, Tree Ferns being particularly conspicuous. The second best, by Mr. Salter, contained a very choice collection of plants, even many rare Orchids in flower. The group was arranged in the usual sloping manner, therefore not so effective as the irregular arrangement. The third group, as well as the other, was similar to the first, being scarcely inferior as regards general effect, and contained a large number of choice and well-grown plants.

The miscellaneous class was small, the most conspicuous exhibits being a fine group of Carter's Queen's Prize Strain *Mimulus*, which were, indeed, very fine, as were also the new *Violas* from the same firm. Cut Roses came from Mr. Rumsey's nurseries, Waltham Cross. Pansies in large numbers and great variety from Mr. Hooper, Bath. *Gloxinias*, well-grown *Coleuses*, *Calceolarias*, and standard plants of *Mignonette* from various other exhibitors.

First-class Certificates were awarded to—

Mr. B. S. Williams, Holloway, for—

Actinopteris radiata australis, *Philodendron elegans*, *Heliconia nigra punctata*, *Odontoglossum Alexandræ grandiflorum*, *Asplenium apicidens*, all described in our columns last week.

Mr. Turner, Royal Nurseries, Slough, for—

Pelargonium Martial, a beautiful new variety of the show type, with flowers of large size and fine form, and of a bright crimson lake, blotched and feathered with a deeper hue. **Mr. Henry Cox**, one of the bronze zonal type, the finest we have seen, the zone being high coloured and also the ground colour. It is a fine addition to a section which has been bare of novelty for some time.

Messrs. J. Laing & Co., Forest Hill, for—

Begonia Davisii fl.-pl. superba, the fine variety alluded to in our columns last week. **B. Mrs. Robert White**, one of the tuberous section with unusually large flowers of fine form and substance, and of a delicate rose tint. In the habit, too, it is vigorous and erect. **Coleus Stanstead Rival**, a pretty foliaged variety with deep carmine leaves, edged with bright emerald green, and mottled and blotched with various shades of crimson.

A full list of awards is given in our advertising columns.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

EDITOR'S TABLE.

From Professor Owen comes the first Day Lily of the season, type of a beautiful race of Lily-like flowers which deserve better treatment in gardens than they get. Their beauty would be better seen than it is now if they were planted more in groups or colonies, each by itself in rich, deep soil. The fragrance of some kinds is very delicate, and the form of the foliage so good and the growth so free that they are among the plants that might well form groups on the lawn or take part in beds of the finer hardy plants. Some of them are also among those worth growing for cutting from.

From Highclere come many bunches of Rhododendrons, of one famous kind of which—*Altaclarensis*—this noble hill garden is the cradle. Here they are at home as if they were on the mountains of the Carolinas or Virginia. This year has been a fine year for bloom. With them come the Azaleas, an excellent collection, as usual with the yellow and orange tints predominating, but also good representatives of the white and delicate peach colour and pink and white tinged with red, so desirable among this beautiful and fragrant family of hardy shrubs. The orange and yellow "notes" are rather too predominant among them generally, rather apt to shut out the more delicate lighter colours. These, among the most brilliant of out-door flowers, are, however, quite outshone by the great flowers of the tree *Pæony*, from the same garden. On the hill they escape the frost, and grow and bloom well. The blooms are 7 in. to 8 in. across, and are very fine in form. The hills suit many types of flowers and trees better than the valleys. Happily, it is so, because we thus get the more interest and that unending variety in the individual, its condition and beauty, which is the greatest charm and the exclusive possession of gardening. We shall eventually, no doubt, know so well what suits the hills and valleys that very different types will be found in each. The surprising thing is that the serious effect of cold in valleys has taught so few lessons as regards the culture of fruit trees.

From Mr. Lynch at Cambridge comes the American Crab (*Pyrus coronaria*), valuable as blooming later in our gardens than other trees nearly allied to the Apple and Pear, and its flowers, moreover, have a violet-like scent; it is a neglected tree. Also some handsome red Chestnut-like *Pavias* (*P. rubra* and *P. bicolor*), the double Horse Chestnut, and the Judas tree. The singular charms of an old specimen of this tree entitle it to a good place on the lawn or choice shrubbery, whereas it is often not seen in the ordinary garden.

From Cambridge comes also the excellent Tansy-leaved Thorn, with numerous very fragrant flowers and pink stamens. There are some tall old trees of this in the Botanic Gardens, Regent's Park, where they flowered profusely this season. Of other interesting plants in the Cambridge Garden Mr. Lynch writes as follows:—

The different species of *Æsculus* and *Pavia* have scarcely past their flash of beauty. The double Horse Chestnut, though not finer than the single kind, is certainly handsome, and being uncommon is deserving of note. *Pavia bicolor* grows to no more than the size of a shrub here, and a fine one it is, but *P. rubra* makes a striking tree,

contrasted with the red-flowered sorts. *P. flava* is interesting, but not showy. *Genista sessilifolia* is a bright and sparkling shrub, one of the best. A variety of the *Laburnum* with convoluted leaves will, perhaps, prove interesting; its appearance quickly arrests attention. *Asimina triloba* this year is flowering most profusely, and, being rarely found in good condition, it is gratifying to say that the tree is perfectly at home, and is the finest with which I am acquainted. A variety of the Persian Lilac with lacinated leaves is curious; the white-flowered form is a valuable shrub, and not too common in shrubberies. The double Hawthorns, now nearly over, have been magnificent. Other species besides the common one have great floral beauty; *Crategus tanacetifolia* has pretty pink anthers like those of *Prunus Mahaleb*, which set off the pure white flowers to advantage. *Viburnum Oxy-coccum*, next to the Guelder Rose, is the most beautiful of the large growing species, and much surpasses the Guelder Rose in the sterile wild form. In autumn it bears very handsome red berries in flavour like those of the Cranberry, for which they form a substitute. The common Broom (*Cytisus scoparius*) is one of the handsomest shrubs of the season, and *Weigela rosea*, known to all, needs no remark. Trees and shrubs have flowered here this season most profusely, and nothing could equal perhaps the snowy grandeur of the double Cherry. *Amelanchier canadensis* var. *alnifolia* was superior to all its allies, on account of its white flowers being associated with beautiful green foliage. The Poppy (*Papaver umbrosum*) is fine in flower and neat in habit; *Lathyrus Sibthorpi*, the earliest of all, has been in flower for two or three weeks.

From Cambridge also we are pleased to have the North American Papaw (*Asimina triloba*) in blossom, a most curious flowering tree, hardy here and growing in New York and Pennsylvania, as well as southwards. The flowers are very singular in appearance, being large and pendulous and of a dark leather colour. We have received it on previous years, and published an engraving of its flowers and shoots from a specimen that bloomed in Osborn's nursery. It is interesting to know that it blooms well in such a cold situation as the Cambridge Botanic Garden. The flowers grow from the axils of last year's leaves. Gray speaks of it as growing from 10 ft. to 20 ft. high, and the fruit as "yellowish, sweet, and edible in autumn." The leaves have a disagreeable odour when bruised.

Mr. Marnock has been pointing out to us the value of the old Guelder Rose as compared with some of the newer *Viburnums*, such as *V. plicatum*, and the old one is much the better of the two, although the advantages of fresh soil and a choice position are on the side of the newer kinds. Where the old Guelder Rose has a good place, and where its shoots are thinned somewhat, its "snowballs" are indeed often as large as those of *V. macrocephala*, as we see this grown in England, and with which so much care is generally taken.

Sweet Peas, large, leafy, and free in growth, a welcome nosegay, and the earliest of its kind, from Miss Jekyll, who says, "They are later than they should be, kept back by the hard winter and long cold spring. They were sown in September in a shallow trench, and stood through the winter at about 4 in. high. These flowers show well an important point in the culture of many a good annual flower, and that is autumnal sowing, and a slow steady growth through the winter. No doubt the sandy soil of the Surrey hills tends to save the plants through the winter. In many places the fact seems to be lost sight of that hardy annuals, to be at their best, must be sown in autumn. Even if some should perish in an unusually severe winter, it is always worth while making regular sowings for the chance of securing a fine bloom. Perhaps the noblest of hardy annuals is the Sweet Pea. Treated this way, and also assisted by subsequent sowings, one may have this ever-welcome flower for almost half the year.

Scarcely less welcome, a stately bunch of the white single garden Columbine, so large and free that it reminded one of

the white Rocky Mountain Columbine, but this common single Columbine is so easily grown that it has the advantage over the rarer kind. While many have to regret the disappearance of the finer species of *Aquilegia*, and the hopelessness of raising them pure from home-grown seed, it is well to know that a number of good forms of the common European kind may be raised from seed easily. It would be worth while to fix some of these and raise them separately, as Messrs. Vilmorin have done with the blue and other *Cinerarias*.

From the same garden charming little Brier Roses, double and single, yellow, and white, and red. Shortly before they arrived, a circular from the National Rose Society came to hand, in which it asks for information and assistance in the formation of a catalogue of "show" Roses, others being excluded. Well, if the worship of the large, and the showy, and the "well formed," &c., only among Roses is to be specially advocated by the National Rose Society, to the exclusion of the wants of our gardens, which are very much more important to the public generally than the wants of shows, it would be almost worth while having another Rose society to encourage the many lovely Roses that do not come into the category of "show kinds," good as many of these are.

From the same Surrey garden the foliage of the White Day Lilies (*Funkia*) is the finest that comes in our way at all. The fine form, the freedom, the spotless verdure of the foliage of these plants are admirable. The shape is so good that merely placing them without care in a vase or jar they fall into a good group at once. These plants are worth having for the sake of the cutting only, though, as we know, the flowers have some value, and the habit of the whole plant is good when well grown. The kinds of which the foliage is so good are *Funkia grandiflora* and *F. Sieboldi*. In the district from which they come there are no slugs to eat the foliage; but in Hyde Park last year they also escaped, and *Sieboldi* surpassed the finest tender plants in its effect.

Mr. Stevens, while having a large botanical collection, also very properly has extensive collections of separate classes, as, for example, the single and double *Pyrethrums*, and the beauty of the double ones is now so fully recognised that some of our nurserymen can hardly supply enough of them, even where they propagate them by tens of thousands. But, perhaps, the equal charms of the single kinds will be quickly recognised in these Daisy-loving times, these *Pyrethrums* being among the most striking and certainly the richest in colour of the Daisy-like flowers, fine deep rose and reds being very conspicuous. We should recommend our growers of hardy flowers to secure a good race of the single *Pyrethrums*.

Mr. Stevens, who has a very full collection of German Iris, kindly sends us a whole garden of them, which we at once proceeded to throw into groups, first the softer yellows altogether, then the rich dark and yellow kinds (forms of *I. variegata*), then the light netted purplish kinds, and lastly those of a deeper, purer, purplish tint. In this way we get in each vase a simpler and better effect than from the mixture, the soft yellows being among the best. Some of Mr. Stevens' tufts of *Victorine* and other good kinds are broad and bold, and grown as *Irises* should be.

The *Irises* are the flower of the week, and how to make the most of them, how to get the fullest expression of their beauty, is worth the attention of all who care for early summer flowers. We do not need much more the labours of the

cross-breeder in this direction. Our gardens are full of sorts, too many sorts, and the result of having so many is a mixture of no one definite tone, endless pretty varieties, but no sufficient place given to the finer types. There is danger in too many kinds, delightful as they are individually.

From Professor Owen we have a couple of fine old *Irises*, which perhaps tell us as well as any other how to get the best result from them; they consist of the great *Iris pallida* and the rich yellow and dark velvet *De Bergi*. When one has plants so valuable as either of these, or, indeed, as *I. Victorine* or *I. Darius*, the best way is to fix upon a good place and form a little colony. Suppose we have a couple of square yards say of unoccupied space in a good border or on the fringe of a bed of shrubs. Instead of filling this with nine or ten different plants the best way would be to thoroughly prepare it with deep and rich earth, and then break up a tuft of *I. pallida* and dot it over the surface, so leaving it for half-a-dozen years. For a little top-dressing after the first few years it would be grateful, and beyond that nothing would be necessary except cleanliness, and when once the shoots close a little, that would be very easy. The effect of such a group after the first year's growth is, in soil of fair quality, superb, as good or better than that of many things which require, perhaps, weekly or even daily attention in the shape of watering, &c. Even when out of flower the form of the *Iris* leaves is so good, that it would in the picturesque garden seldom be otherwise than helpful to a general good effect. Treat five or six kinds in this way; one bold group or colony of each would be better than trying to grow many kinds promiscuously, though a large oval or circular bed filled with a choice mixture is also desirable, and it might be easily planted, so as to give a succession of *Lilies* after the *Irises* go out of flower, and thus form one of the richest groups which one could have in a garden.

Frequently new plants come to us in a condition which scarcely represents their full beauty, and so of *Ixiolirion tataricum*, of which fresh and very well grown specimens from the New Plant Company show it even in a better light than we have hitherto spoken of it, the growth being by far the best we have seen. There is a singular charm in the way in which the plants bloom when grown thus, the flowers being neither in heads nor spikes, nor any particular or described form, but in two or three little groups on a somewhat wavy stem, a solitary bloom generally occurring low down on the stem, guarded by a small leaf. However, this we hope to show by the aid of an illustration. The New Plant people at Colchester seem to be growing successfully some good and rare plants. They also send *Iris chalcidonica*, a "mourning" *Iris*, and very wonderful if we had not Mr. Ewbank's enormous *I. susiana* before us, which is about double the size of the Colchester bloom, though that is larger than a good German *Iris*.

They have a curious collection of Japanese Maples, particularly the variegated forms, but these being even more slow in growth and fragile than the green and coloured forms would require good culture in pots, which, however, they well deserve. The American hardy Orchids from the same source—*Cypripedium acaule* and *Arethusa bulbosa*—are very well grown. Some day we shall no doubt see hardy Orchids among the effective ornaments of our gardens, well out of the sickly and "dotty" stage.

Mr. Ross, in writing from Highclere of a native tree, little planted for its beauty, the Wild Service (*P. torminalis*)

not the true Service, *P. Sorbus*, which is not a native tree, "The *Pyrus torminalis* has been lavishly covered with its white blossom, and had an impressive effect by the side of evergreen Oaks and other dark-foliaged trees, where it had been judiciously planted many years ago." We noticed some fine tall trees of this at Highclere (though it is described in botanical books as a low tree), and saw the fruit selling in quantity in the Vienna markets. It is also said to be sold in our country markets.

The effect of the *Melidoreas*, or so-called Roman *Ranunculi*, is extremely good—not the many-coloured or orange races, but the sulphur and canary-coloured forms, showing well the black "centres," the very thing we should have hated them for some time ago, or some of us. It is curious that the very worst form for the artist, and those who care about good forms, are those chosen by the florist. For instance, an artist would infinitely prefer one of these open flowers showing a bold black centre to the same flower if it formed a big Bachelor's Button. So we certainly do in this case, though there are many double flowers which are admirable. These *Melidoreas* come from "St. Bridgid," on the Hill of Howth, and with some Banksian Roses from the same place are among the most delightful things we have.

Some fronds of the hardy American Maiden-hair Fern (*Adiantum pedatum*), from Mrs. Davidson, just came in time to embrace the last bunch of the double Poet's Narcissus, and a very bold and pretty little group is formed in a narrow-necked glass by four of the Gardenia-like flowers of the Narcissus, and one single well-grown frond of the Fern. From its boldness and freedom when well grown it is very useful for the room garden, so to say. There should be no trouble in establishing it in a woody bottom in rich leaf-soil. But it is well worth growing in a cool house for a supply of fronds.

Plants from various parts of the country sometimes throw new light on interesting questions, and a series of beautiful examples of the finer Columbines from Mrs. Davidson at Ashmore, near Salisbury, bear upon a matter that has often been discussed among growers of hardy flowers; the culture and endurance of the nobler species of *Aquilegia*, Mrs. Davidson says:—

My Columbines are (as, indeed, they always are) a perfect blaze of colour. *A. glandulosa* is blooming profusely from three-year-old plants, and I have some old plants of *A. cœrulea*, which are better than they have ever been. This is the only species I have difficulty with. Mr. Ewbank's prophecy in the winter was, that I should not bloom those plants a second time. I only wish he could see them now. *Aquilegias* grow most luxuriantly in this almost alpine climate. The plants of *A. cœrulea* now in profuse bloom (each blossom measuring $4\frac{1}{2}$ in. across by strict measurement), are at least four years old, if not more. They were transplanted two years ago. *A. Skinneri* is a veteran, with literally hundreds of blooms. Amongst many failures, one likes to record a success. The glory of my cold greenhouse is a pair of Nepaul *Saxifragas*; height, 3 ft. from the bottom of the spike, and the circumference at the rim of the pot close upon 6 ft.

Black Pansies, white Pinks, large rosy Thrifts, Sweet Honeysuckle (a good free-blooming kind), American Cowslips, scarlet Larkspur, the Pyrenean Lily, the fine Russian Primrose (*P. luteola*), figured last year in THE GARDEN, the Snowdrop Anemone, Welsh Poppies, St. Bruno Lilies, and Amethyst Scillas all come from the same garden, telling us how well all these fair flowers thrive on the wind-swept hills of Wilts and Dorset.

I noticed in Mr. Marnock's garden that bright gem, the true Alpine Pink, *Dianthus alpinus*, with grass-green leaves. Many Pinks inhabit rocks and mountains, but this is quite

distinct in its bold, firm, rosy flowers, rising from a close carpet of leaves, not pointed like those of other Pinks, but blunt and short. The Alpine Pink is difficult to grow about London, mostly owing to destruction from wireworm. It used to be obtained at one time by London nurserymen from Fennesy's nursery at Waterford, where it grew freely and well. Full exposure to the sun, and a deep and not dry soil will suit it; but not the dust-dry or stony "rockwork." As a spreading group on a low well-formed rock garden it would be charming.

How bright and beautiful are those *Ixias* opening day after day in a London house, far away from their sunny home in Guernsey, whence they were sent us by Mr. C. Smith. It is a pity we cannot more commonly see these bright and strange flowers in our gardens, but if this should never be it is almost worth while having them grown in quantity for us in Guernsey, considering the length of time they last in a cut state. It is said their culture is simpler than we suppose, only the fact remains that one never sees them quite happy in our gardens.

The great crimson Tulip (*Tulipa Gesneriana*) comes to us from Messrs. Carter, who speak much of its effect. Well, no wonder, for this is the parent of all our true florists' Tulips, the late-flowering kinds as distinguished from the early and "bedding" Tulips. It is the parent of that superb race of flowers which made the old Dutchman enthusiastic, and which have formed so long a delightful study for our own florists. It is the parent of those tall old late kinds which Mr. Burbidge has lately been enquiring about, and which are a mixture from the florists' Tulips settled down into their own ways in cottage gardens.

We were pleased lately with the distinct effect of *Weigela Lavallei*, a dark crimson sort of which some dwarf plants are blooming freely in London in the Chelsea Botanic Garden. New forms of these shrubs are worth being carefully and tastefully placed, so as to secure their free growth and good effect when in bloom. Where not "absorbed" in the overcrowded shrubbery their bloom of late has been beautiful. The kind above named is wholly distinct from that of any other we have previously seen in cultivation, and well grown on a good soil and in pure air it will prove a valuable shrub. Worthy to rank with these is a very good double *Deutzia* (*D. candidissima* fl.-pl.), sent us from Newry by Mr. T. Smith. When shall we begin to cultivate and prune such shrubs as they deserve to be? Because a plant or shrub will live without attention at all we neglect it, but a subject of no greater beauty indoors requires daily attention, is most carefully pruned and placed exactly in the conditions that suit it best, while perhaps its bloom is not very remarkable, and no longer in duration than one of these choice hardy shrubs, which may perhaps be in a half-starved state for the want of some attention that an hour once a year, or, perhaps, once in three years, would suffice to give. In the true garden every individual in the shrubbery should be carefully considered, as carefully as a "specimen" in the "winter garden." Why not?

Among the many bright flowers which cheer the week is one very quaint shrub with slender shred-like bloom of a chocolate colour and evergreen leaves, and this is the narrow-leaved, evergreen Spindle tree (*Euonymus angustifolius*), which was new to even so attentive an observer of evergreen shrubs as Mr. W. E. Gumbleton. It is an elegant small evergreen, which comes from Mr. Stevens, of Byfleet, and with it

another very curious hardy shrub, *Aralia quinquefolia*, which also has puzzled some of our friends.

The Forget-me-nots are admirable in the cut state, the wood Forget-me-not being sold in Covent Garden in thick bunches for weeks past. A bunch of the deep blue *Impératrice* from Newry is a welcome addition to the sky-blue of our wild kind. This *Impératrice* is a hybrid with the colour of the Azores Forget-me-not, a species not often seen. The hybrid, being of easier culture, is more common in cultivation. It is pretty cut in a Violet glass.

Our friends will kindly note that these pages are not reserved for hardy subjects only, but for flowers from any department indoors or out, more especially perhaps for such as are seen to best advantage as cut flowers in rooms, or that can be best enjoyed when brought near the eye. Particularly do we desire examples of tree and shrub life, whether flowers, fruit, or foliage.

NOTES OF THE WEEK.

The American Apple Trade.—In speaking to Mr. Walter Draper, of Covent Garden, the other day of the state of the packing of the enormous number of Apples coming to us from America during the past season, he referred to the great loss and disappointment incurred from bad packing, brands found to be deficient in that way being evaded by the purchaser. He said that there would be no objection whatever to the Apples being classed, and that sales could be readily found for more than one class, but the ones, twos, and threes should be rigidly and conscientiously separated, and kept so in the barrel. The Canadian Apples are much better. As it is to Mr. Draper's firm that most of the Apples coming to the London market are shipped, his opinion may be worth mentioning to our American readers.

Fine Old Judas Tree.—In THE GARDEN of Mr. E. Harcourt at St. Clare, in the Isle of Wight, there is just now a Judas tree in blossom which is worth a pilgrimage to see. It would hold its own even in the environs of Smyrna. The tree is 18 ft. high, and the circumference of its branches is about 75 ft. At this present moment it is laden with blossom, and its kind of ruby-red against the dark foliage of a tall *Pinus insignis*, which grows close by, is most striking to look at.—H. E.

Finely-flowered Anthurium Andreanum.—The finest flower of this new Aroid is now in perfection in Messrs. Veitch & Son's nursery at Chelsea. The spathe measures 5 in. in depth and 4 in. in width, and the singular yellow and white spadix is proportionately long. The foliage, too, is large, one leaf being 1 ft. or more in length, and several nearly as large. The size of the flowers approximate nearer to that of native specimens than any that have hitherto been produced, and we may soon hear of their being even larger when the plants come to be more extensively grown and in pure country air. The house occupied by the older, but scarcely inferior, *A. Scherzerianum* is now quite a floral sight in itself, being quite aglow with brilliant scarlet spathes, which may be seen in all sizes from that of those originally introduced to the huge broad spathes of *A. Wardi* and *A. Palmeri*. The singular *A. Rothschildianum*, a hybrid between the white and the red, is likewise in flower, and the white spathes, thickly bespattered with red, renders it extremely attractive. There is also a variety remarkable for its extreme floriferousness, and though the spathes are not very large, are invaluable for cutting purposes.

Oriental Poppy (*Papaver orientale*).—At this season this Poppy is one of the most conspicuous objects in the garden, its large brilliant scarlet flowers being strikingly effective even at long distances off. There are several forms of it and during the week have had an opportunity of making notes respecting them in Mr. Stevens' collection at Grasmere. Among these are major, a variety with flowers of a larger size than those of the type, and of a slightly different colour; bracteatum, distinguished by the leaf-like bracts that surround the flower; concolor, a form without the jet black blotches at the inner bases of the petals; triumphans, remarkable for its floriferousness and dwarf habit of growth; pulcherrima, a variety intermediate between the last mentioned and the type and also more floriferous. These hardy Poppies should certainly be grown in every garden; they are not in the least fastidious as to soil, and

thrive without care if planted in a good position. Among other kinds of Poppies in the Grasmere collection, which is just now attractively in flower, may be named *Papaver lateritium*, a kind with long deeply cut leaves and flowers about the size of those of *P. nudicaule*, but of an orange red or brickdust colour. It grows in a dwarf compact tuft and bears a large quantity of flowers. The Welsh Poppy (*Meconopsis cambrica*) thrives uncommonly well in this garden in a partially shaded border. Of this there is one tuft a couple of feet through and bearing a mass of clear yellow cup-like blossoms.

Indigofera decora alba.—This lovely shrub is quite an acquisition. It thrives in our climate if afforded a little protection such as that of a wall. The flowers are pure white and produced in long graceful racemes. The foliage, which is pinnate, is also elegant, and sets the flowers, which hang all one way, off to good advantage. It is now finely in flower in Messrs. Veitch's nursery at Coombe Wood, and at their Chelsea nursery is a fine example of *I. floribunda* against a west wall, covered with a profusion of pretty rosy purple flowers. Both are extremely desirable for planting against a wall, a remark which also applies to the typical *I. decora*, a well-known and beautiful shrub.

Siberian Lungwort (*Mertensia sibirica*).—Those who do not possess this beautiful hardy plant would do well to add it to their collection, as it is one of the most desirable of its class, and a plant that never fails to give satisfaction, especially if grown in a damp peaty soil, though it thrives finely in an ordinary border. We noticed it the other day in Mr. Stevens' garden at Byfleet, growing in a rather dry border; nevertheless the plant was full of flower and vigorous. The flowers, which are small and bell-shaped, are produced in loose drooping clusters terminating gracefully arching stems. The colour varies from a delicate pale purple-blue to a rosy pink in the young flowers. It is a more elegant plant than the Virginian Lungwort (*M. virginica*), an older and better known kind. It is a perfectly hardy perennial, and continues in bloom for a long period. It was faithfully figured in THE GARDEN, Vol. XVIII., p. 514.

Gloxinias at Chelsea.—The houses devoted to these beautiful plants in Messrs. Veitch's nursery are now extremely gay, the display of flowers being at its best. A long span-roofed house is entirely filled with them and is quite an exhibition in itself. The stock consists principally of the erect flowered type, which is quite superseding the horizontal class. The range of colour in the hosts of varieties represented is extremely wide and quite indescribable; some are beautifully marbled and spotted, others exquisitely freckled with varied buds; others again are self-coloured, while others have a margin of pure white on the lobes of the corolla. There are numerous new kinds this season, all decided advances on older sorts. Among these novelties are Radiance, the finest self of its colour, an intensely rich crimson with a velvety lustre on the surface; Brantome Fabiola, Christophe Colomb, Lady Marriott, all extremely fine sorts and which have been lately certificated and described in these columns. The finest white yet raised is one called Purity the large erect flowers of which are of spotless whiteness. Besides the new kinds of this year there are several of the older kinds that have not been superseded in their respective colours; for instance, it is not easy to surpass such a beautiful freckled variety as Coronet, one of last year's certificated sorts, and many others may be instanced. The whole of the seedlings raised in this establishment are characterised by a dwarf stout growth, robust foliage, which recures so as to nearly hide the pot, and profuse flowerers added to their beautiful and varied hues. These plants will be in good condition for two or three weeks hence, or even longer, as some of the plants have only just begun to flower.

The National Rose Society having determined to publish a catalogue of exhibition Roses, the executive committee have made a selection of such kinds as they think belong to that class. They, however, desire more information on the subject, and, on application to the secretary, 37, Arundel Street, Strand, forms will be sent in which any observations likely to be of service to the committee may be entered, the object in view being to prepare what they hope may prove to be a standard catalogue of exhibition Roses.

A Public Park for Burnley.—The late Mr. Alderman Scott, who was one of the ex-Mayors of Burnley, has left £10,000 for a public park. He gave £1600 to the Mechanics' Institute two years ago.

WE learn that the following are the approximate numbers of visitors to the Royal Horticultural Society's Show exclusive of Fellows; the results show the deterrent influence of the unfavourable weather on the two popular days, Monday and Tuesday. Friday, 1288; Saturday, 1610; Monday, 3632; and Tuesday, 2200; making a total of 8730.

ORCHIDS.

CYMBIDIUM EBURNEUM.

THIS is not only one of the handsomest of all Orchids, but without doubt one of the finest plants in cultivation. Its foliage is graceful and evergreen, and not marred by the presence of gaunt, bare pseudo-bulbs. The flowers, which are borne well above the foliage, rival even some of the white Liliiums in purity, substance, odour, and size, and, moreover, last four weeks in perfection during the dull months of January and February. Formerly this plant was not grown well owing to the erroneous idea that it required peat and Sphagnum to root in, and a hot close atmosphere to grow in. Under such conditions both growth and flowers were feeble, and the leaves rarely preserved their points, which were continually becoming black. This Cymbidium should be potted in fibry loam, mixed with which should be drift sand and small broken crocks in sufficient quantities to keep the loam when decaying from forming a solid, unærated mass. A little peat, leaf mould, or even dry cow manure, according to the fancy of the



Cymbidium eburneum.

grower, will do no harm. Let the pots be half full of drainage secured either by a layer of Moss or pieces of thin turves. Pot moderately firm, and instead of elevating the plant above the rim of the pot keep the compost at least $\frac{1}{2}$ in. below it, so as to make watering easy. The roots of this Orchid are large and many in number and require much more pot-room than is generally afforded. From now till October water must be given freely, and at all times water often enough to keep the roots moist; this plant cannot stand dryness at the roots. To pot-bound plants throwing up their spikes, a little weak manure water may occasionally be given. This Cymbidium is quite at home the whole year round in a shady position in any well-aired intermediate house, where the winter night temperature is about 55° . This being so, and considering what excellent cheap plants the nurserymen are now offering of it, it is surprising that so many gardeners fail to add it to their collection of winter-flowering plants.

J. C. SPYERS.

Hardy Orchids in Flower.—During the week the following beautiful and interesting plants have been in flower in the Hale Farm Nurseries, Tottenham: Of Lady's Slippers, *Cypripedium acaule* with beautiful rose-tinted blossoms, the pouch being extremely singular in form; *C. candidum*, an exquisite little species with rather

small flowers, having dull-coloured sepals, but the pouch is of snowy whiteness, and strikingly resembles a small bird's egg in shape and size. The attractive Siberian species *C. macranthum* is thriving uncommonly well here, and the flowers, some 2 in. in length and of a rich purplish rosy hue, combined with the peculiar network in the pouch, render it very showy. These three kinds are growing in the rock garden among low shrubs, which afford them partial shade, and a surface mulching of moss keeps the roots moist and cool. The soil in which they are growing appears to be of a peaty nature. In a snug corner, sheltered by thick hedges, are large groups of *C. Calceolus* and *C. parviflorum*, thrives and flowers as in its native haunts. Both are extremely pretty, and would be worthy occupants of a shady nook in any garden. The former requires a good loamy soil, the latter a light peaty soil enriched by leaf-mould. The rare and extremely handsome *Arethusa bulbosa* is finely in flower; it grows but a few inches high. The flowers, which remind one of those of *Bletia hyacinthina* both in size and colour, are borne singly on short erect stems proceeding from tiny bulbs. Remarkable more for its extremely curious flowers than its showiness, is *Liparis liliiflora*, a small growing species with a pair of broad leaves and a loose spike of tiny flowers, having dull purplish lips almost transparent and long narrow sepals, reminding one of a long-limbed insect. A really show plant is *Orchis spectabilis*, a tuft of which is highly attractive in the rock garden. The flowers are small, but many are crowded on a spike, and, being pure white and a delicate purple, are showy. A batch of the pretty *O. laxiflora*, from the Channel Islands, is better than we have hitherto seen, and there are also good flowering plants of various kinds of *Serapias* and a large breadth of *O. foliosa*, which, however, is not fully in bloom, though a few early spikes show what a fine plant it is.

W. G.

Rocky Mountain Cacti.—I should like to direct attention to a small group of hardy Cacti which I collected myself in the Rocky Mountains of Colorado during the summer of 1878. Some of them were collected at an altitude of over 10,000 ft. These plants have been kept in an airy frame, protecting them from wet only; they have been frozen hard for weeks together and during the last three winters no attempt was made to protect the frames with mats. Plants of the same species were planted out in a sheltered spot under a wall, and although we had 41° of frost last winter, these plants are quite healthy, and some of them are flowering. I am just now constructing a large alpine garden, and I intend to plant out a number of these Rocky Mountain Cacti on the rock-work. Cacti are not fashionable now, but I think it is very interesting to find that so many fine plants of this class are hardy and easily cultivated. The flowers of some of my species, *Echinocereus* and a good many others, remained open day and night for ten days or a fortnight. The flowers of *Echinocereus Findleri* are of a splendid purple colour. The flower of a plant which I sent to Kew was figured in the December No. of the *Botanical Magazine*, 1880, but the colour was feebly represented in the plate. My garden has suffered badly this winter, as might be expected with 41° of frost. I am afraid we have lost large evergreen Oaks 60 years old.—E. G. L., *Weedon, Northamptonshire*.

School Gardens.—The public school law passed in Austria in 1869 provides that "in every school a gymnastic ground, a garden for the teacher, according to the circumstances of the community, and a place for the purposes of agricultural experiment be created." The school inspectors of each district are instructed "to see to it that in the country schools school-gardens shall be provided for instruction in all that relates to the soil, and that the teacher shall make himself skilful in such instruction." The general law declares "instruction in natural history is indispensable to suitably-established school-gardens. The teachers must therefore be in a condition to conduct them." Contrast this thoughtful care with the system, or rather want of system, for instruction pursued in the public schools of our rural districts.

Waxed Paper.—We find this to answer admirably for wrapping plants in or cut flowers for transit by post, preventing, as it does, the flowers and plants from becoming dried up. We get it from our chemist.—F. HORSMAN, *New Plant & Bulb Company, Colchester*. [This paper is strong, transparent, pliable, and light—just the thing for the purpose indicated.]

THE FRUIT GARDEN.

FRUIT GROWING MADE EASY.

Selecting Trees for Particular Soils.—Although in these days access can be had to so many sources of information respecting fruits, yet before purchasing a quantity of costly young trees it will be wise to take particular notice of those that are in a thriving state or the reverse in the immediate neighbourhood in which the fresh plantations are to be made; besides which much valuable information will, doubtless, be willingly supplied by some local fruit grower, and by that means time and expense may be saved, and failure and disappointment avoided. For instance, I know of a piece of ground on which the Prince of Wales Plum will not succeed, yet other sorts close by grow and do well. There is also an orchard situated at the foot of the range of chalk hills that run from Wrotham to Rochester; the trees are now old, but they have a reputation for having produced Cherries of the English or Flemish type to something like perfection. Some peculiarity of the soil in the one case acted prejudicially to the particular sort of Plum, whilst in the other it was conducive to the growth of the Cherry specified. Frequently one hears in conversation such remarks as, "Our soil suits such and such well," or "We can't grow them our way," and so forth—remarks that apply with equal truth to Corn and Hops, and which might be verified in numerous instances. There are, indeed, few fruit growers or farmers of observation and experience who could not point out certain pieces of ground specially adapted to the production of some particular crop.

Planting.—Having decided upon the trees, the ground should be carefully set out for planting, a long line, such as is used in market gardens, being very useful for the purpose. This must be marked at every 6 ft. with chalk or otherwise, or at any other distance at which it is determined to plant. Owing to the line being apt to shrink or stretch somewhat, through the action of the weather, it is advisable, when convenient, to set out as large a piece of ground as possible at one time. Black Currants require a space of 6 ft. each way; some are planted 6 ft. by 5 ft., but the former is in my opinion the better plan. Gooseberries may have a little less space allowed them, say 5 ft. square, but I strongly incline towards giving trees and plants plenty of room, and it must be borne in mind that the intermediate space is still available for Potatoes and other crops until the trees require it, which, in good ground, and in the case of Black Currants especially, will very soon be the case. The practice of mixing Plum trees with Black Currants is not a bad one; they should be put at a distance of 18 ft. apart, thus taking the place of every third Currant tree in every third row; those planted 18 ft. by 12 ft. have not sufficient room, as in a few years they crowd each other. Nuts and Raspberries, with here and there an upright-growing Apple, Pear, or Plum tree, form a good plantation, but Apples and Cherries in quantity I like by themselves, where ultimately a good turfed orchard may be made. Where Raspberries and Nuts are planted together, there may be one row of the latter, then two rows of the former, and one of Nuts again, and so on, the Nut trees being 10 ft. to 12 ft. apart in the rows, and from 12 ft. to 14 ft. from row to row, in which space there is room for two rows of Raspberry canes as far apart as to admit of walking and working comfortably between them. There will also be space for some time to come between the Nut trees themselves for a few canes. Damson trees are very suitable for the outsides of plantations or orchards, and may be planted about 12 ft. or so apart, near to, and, in some cases where circumstances are favourable, even in the hedgerows themselves. For Apple and Cherry trees space must not be grudged, a distance of 30 ft. or even 36 ft. each way being no more than desirable for spreading sorts. When planted it will appear as if they will never cover the ground, but it is surprising what a few years of good cultivation will do for them, and where the diagonals of each of these squares would cross each other, a Plum tree may be planted, and at some future time cut down when it is in the way. The May Duke Cherry and King of the Pippins Apple and other upright-growing sorts may be put considerably closer together than the above. The inconvenience of moving ladders among trees that are growing one into the other is very great at times, besides which the fruit, being thus half smothered, does not come to proper maturity, a statement which any one who has noticed and compared the produce of the outside boughs (more

particularly in the case of Apples) with that gathered from the inner or more crowded parts of the tree will corroborate.

AGRICOLA.

VINES IN THE OPEN AIR.

FOR clothing a wall, or as a climber for a cottage, no other plant looks better than a Vine in country places. But about the suburbs of large towns it always has a dusty, miserable look, and there other kinds of climbers might be employed that will answer the purpose better. In this country the Vine grows well in the open air, and is still very frequently used for the above purpose; at the same time I think it is pretty generally admitted that expecting to see ripe fruit in autumn is being a good deal too sanguine. I have had many years' experience with a Vine that once covered my house, and when I look back at the beauty of its appearance in former years, and the quantities of ripe Grapes I annually had from it, the retrospect seems almost a dream. A few rods of that Vine remain in a corner, but the walls are now perfectly bare. I took possession of my cottage in the year 1845, and this Vine was then in full beauty, and for about twelve years afterwards it still continued fruitful; after that, like most other Vines, it was seized with blight, and three or four years ago I saw no other course but to remove all except a very small portion of it, and that portion had accidentally rooted itself only a year or two previously. With this portion I have annually done all that was possible to restore health. I always have two or three barrow-loads of stable manure laid at the roots in autumn, and have used other means, but without effect. It comes into leaf, it is true, but it never has the same luxuriance nor vigour, and the fruit is invariably blighted. I am quite assured that this blight is different from mildew, because sulphur cures mildew, but has no effect on this other disease, nor have I been able to find any remedy, or to account for the change, except that our seasons have altered, this latter being my belief at present. We should remember that the limits of the Vine are far outside the British Isles. The northern limit is put down in old charts as commencing in Europe about Bordeaux, where the course bends up north towards Germany and again descends towards the Black Sea; therefore we have no right to consider ourselves ill-used. Paris even does not come within this limit, and, as far as I can remember, the estimate is just, for the Grapes, excepting at Fontainebleau, are very poor indeed. It is true we find Vineyards north of Paris, but that is owing to the constant tendency of man to carry useful plants beyond their natural limits. In planting a Vine outside, our first care should be to ascertain whether the situation is favourable, then to prepare the border with some lasting manure like bones. In days past I do not suppose anything was done for a Vine in this way, nor, as a rule, is it done now, but it would improve the prospect of obtaining ripe fruit.

W. T.

— I am glad Mr. Mitchinson is making an experiment with Grapes out of doors on the Vineyard system. In a hot year with early kinds he may have a measure of success, but not otherwise, for our autumn months are a trifle too cool to finish them off either for the table or for wine. Between lat. 48 and 49 N., and with much hotter summers than we have here, I have known seasons in which the sorts of medium lateness barely got ripe, and there was frequently snow on the ground at vintage time. The stakes required need not be more than 6 ft. long, 2 ft. in the ground, and the rest above it. If Mr. Mitchinson grows Vines as they are grown there, that is, headed down like a Pollard Willow of from 1 ft. to 1½ ft high, such a stake is ample. On the long-rod system he might require a pole of 12 ft., but the nearer the ground when grown away from a wall the better are the chances of ripening. Half-a-dozen or fewer shoots are selected as soon as they are long enough, and are lightly secured with a straw tie, the straw being soaked in water, and used double or treble and fastened with a twist. All other shoots are removed from the stump, so that there are really no laterals needing support, as the bunches all spring from the base of the shoots that are tied to the stake. Current side growths are periodically removed, but only gradually at any one time, the last removal of such growths taking place after the stoning time. The main fruit-bearing shoots, having been kept constantly tied up to the stakes, will now be higher than they are, and should be cut down to the height of the stakes and finally secured. If the foliage is very abundant, as it often is on vigorous young plants, the growers are not afraid to take off some of the best leaf growth to let in sun and air, for they attach more importance to these two main items than to any fancied harm that may occur to the plants through such mutilation. After the crop is gathered, the stakes are drawn and stacked, and the Vines left untouched till February or later. Digging, layering, and manuring go on at any time, when the weather permits, between November and April.

SILVESTRI.

— There has been some discussion of late as to whether or not good and serviceable Grapes can be ripened out-of-doors in this country. The produce of out-door Vines, as a rule, is not very satisfactory, but in hot dry summers I see no reason why good Grapes may not be obtained out-of-doors. The lack of favourable weather at the ripening period in autumn is generally the cause of failures. It is obvious that in this country the season of growth of the Vine is considerably prolonged by our heavy rainfalls and sunless summers, as compared with the advantages which it enjoys in sunny France, Switzerland, and other Vine-growing countries. This tends to the formation of abundance of foliage and lateral growth, and thereby prevents the Vine from concentrating its energies on the ripening of the wood and fruit. Probably Mr. Mitchinson (p. 532) has chosen for his experiment about the two best English varieties for this purpose, but I should prefer the Grove End Sweetwater to the Buckland. When planted they should be mulched with good rotten manure to encourage surface rooting. They may possibly the first season require a little water if the weather should prove very dry, but once established they will find sufficient nourishment in the shape of moisture for themselves. It is needless to feed out-door Vines with a view to procure large bunches and berries which our climate is not capable of ripening. If the Vine is planted in a good natural soil of a character not too friable, it will find, when once established, sufficient moisture to support a rod of the size which Mr. Mitchinson wishes to grow. There are two methods under which Vines may be grown on poles: First, by running up a new cane every season from the bottom eye of the previous year's wood and removing the old one; secondly, by pruning back to one or two eyes, similar to our practice of pruning under glass. For out-door culture in this country I recommend the latter plan. The poles used by Mr. Mitchinson are rather high for this purpose. I have never noticed any of that height in Continental Vineyards. Poles from 6 ft. to 8 ft. will be found preferable. When the Vines show fruit, stop the shoots after one leaf is made beyond the bunch, except the leading one, which should be allowed to reach the top before pinching. Do not attempt any tying in of the shoots until the young growths commence to get a little firm. They should then be trained upwards towards the extremity of the pole. The first lateral growths may be stopped after the first leaf is made, and any others appearing after that should be removed. If grown for dessert purposes, thin out the berries slightly. When the ripening period arrives, remove the laterals, leaving only the original shoot and foliage. See that earwigs do not mount the pole and attack the fruit, as they are often very troublesome out-of-doors amongst ripe Grapes. After the leaves have fallen and winter is approaching, place 6 in. of dry litter round the base of the Vines 3 ft. in diameter. This may be done only in the event of very severe frosts being anticipated. The pruning should be completed by the end of February. Fork in lightly the rotten manure applied the previous season, and another dressing may be given at any time after growth commences.

R. G.

FRUIT PROSPECTS IN KENT.

Maidstone.—Of fruit there are at present hopeful signs of a much larger yield than last year, but this question will be decided one way or another in about a fortnight. Apples show well for a good crop, but Damsons will be short and not nearly so plentiful as last year. Cherries promise only a fair yield. Caterpillars, which last year did much damage, are not complained of to any great extent at present.

Boughton Monchelsea.—The fruit crop in this district may be considered good, but the late winds have done considerable damage to some plantations, more especially the Nuts. Cherries will not be heavy, but we have not many orchards here. Apples have bloomed well. Of most varieties of Plums there will be above an average crop of many sorts, but not all. Damsons appear plentiful at present. Red Currants bloomed well, but have run during the past week. Black Currants uncertain, but more than last year. Gooseberries will be above the average. The yellows apparently are dying out, as they have not borne a crop for some years. Raspberries and Strawberries are not grown here for market, and Peas but in a small way. We have suffered from the caterpillar.

East Sutton.—Apples, Pears, Plums, and Damsons have all bloomed well, and with suitable weather a good crop may be anticipated. Black Currants in exposed places have suffered much from frost and north-east winds; in more favourable situations they are well set, but on the whole there will be scarcely an average crop. The same remarks will apply to Gooseberries. At places the caterpillars have done some mischief and are still troublesome. Nut plantations, where not sheltered, have been much injured by wind and frost, and the trees are infested with maggot. Red Currants bid fair to be an abundant crop.

Brenchley.—The season being unusually dry, all crops are necessarily late. Fruit will be a good average crop. Apples are pretty well, although the maggot is rather numerous in some orchards. Cherries and Plums are showing well, and if the weather should be showery bid fair for a full crop.

Tunbridge Wells.—Apples and Cherries, Gooseberries, and Black Currants look well, but Red and White Currants have suffered in some places severely from frost. Plums will be only a partial crop; in the lowlands they have suffered very much from frost.

Canterbury.—Fruit promises to be abundant. Black Currants now so extensively cultivated will, it is thought, prove a good paying investment this year. Gooseberries are said to have set well, but complaints have reached us from several districts that for the third year the foliage is being ravaged by caterpillars, and if they continue active and extend themselves, the crop will in consequence turn out to be a short one. Apples are very plentiful, and the yield of this useful fruit will, it is considered by almost every one, be a most prolific one.

Ashford.—The fruit crop promises well in regard to some kinds. There is a fair quantity of bush fruit, especially Gooseberries. Some of the later kinds of Apples and Pears are well set, but of Plums, although the trees blossomed well, there will not be many owing to late frosts. A considerable portion of the Cherries have been destroyed through the same cause.—*South Eastern Gazette.*

Fruit Prospects in Somerset.—On all fruit trees in this neighbourhood we have had abundance of blossom, and we may now predict a tolerably good crop of Apples, Currants, Gooseberries, and Strawberries, but Apricots, Cherries, Peaches, Pears, Plums, and Nectarines suffered much from the frost which we had here on the night of May 10 and morning of the 11th, which, besides hurting the fruit prospects, cut all the Potatoes and French Beans not protected to the ground, and damaged the young growth of Ash, Larch, and different kinds of Picea. This was very unfortunate, as the young Pears, &c., were just beginning to set most satisfactorily, and but for the frost should have had an excellent crop.—W. ROBERTS, Merriott.

SEASONABLE WORK.

Vines.—When all the Grapes have been cut from the Vines in the early house inside borders may have a heavy soaking of diluted liquid, and in the event of the surface roots having found their way to the surface a little more mulching may be added to keep them moist and to prevent evaporation. Syringe freely, for the two-fold purpose of cleansing the old foliage and the encouragement of fresh laterals. Keep the latter evenly balanced by pinching the points out of the strongest. Ventilate the house throughout the day, and close with sun-heat about 4 p.m. on fine days. The brilliant forcing weather we have had having been highly favorable to the rapid swelling of late Grapes, take time by the forelock in all matters connected with the thinning and regulating of the crop, as every day lost at this busy season will tell unfavourably when they begin to ripen. Choose medium-sized bunches for hanging; thin well, and guard against overcropping. Lady Downes and other kinds which are liable to scald must be closely watched through the stoning process, but as watching will not stay the evil see that the houses are kept warm through the night and ventilate freely through the early part of the day, so as to prevent a sudden rise of temperature and condensation of moisture on the berries, which do not take up heat so quickly as the atmosphere of a confined Vinery at this season of the year. Give an abundance of air to houses now colouring, and see that inside borders are well supplied with tepid water or gentle stimulants where finish is doubtful. Make a general examination of external borders, as owing to the light rainfall of the past spring it is by no means improbable that the surface roots will be feeling the want of water. If possible let it be applied in a tepid state and mulch with good rotten manure or stable litter to keep the active feeders near the surface.

Pines.—With a good bottom-heat from fermenting materials, the bright weather we have for some time enjoyed will have favoured the maintenance of maximum heats, which will compensate for time lost through the early part of the year. In houses where early-started Queens are ripening a gradual diminution of moisture may take place, and, external conditions continuing favourable, more air may be given whenever the minimum temperature can be maintained at 70°, and the maximum does not fall below 80°. If, as is often the case, the first batch comes in in a glut, their season may be prolonged by lifting them bodily from the bed when they begin to colour, and placing them in a warm, airy room or house in which ripe Grapes are hanging. Plants in all stages of growth will now take more water, but the watering of Pines is at all times a matter which requires great judgment and care.

Successional stock, now making rapid growth, must be kept stout and healthy by means of liberal ventilation, a bottom-heat of 85° to 90°, and early closing with a high temperature from sun-heat. Keep the air about the plants when the house is closed moderately moist, but avoid excessive overhead syringing, particularly where the plants have not well filled their pots with roots. If shading is absolutely necessary, use some light material for a few hours through the hottest part of the day, and gradually reduce it as the plants gain strength. Pot up suckers as they can be obtained from the fruiting plants. Pot very firm, and plunge in a bottom-heat of 90°. W. COLEMAN.

At a recent Sunday school anniversary near New York, the superintendent, instead of distributing chromos and bon-bons, gave each scholar a packet of ten varieties of flower seeds, with directions for sowing and care, and offered a prize, to be awarded at a horticultural exhibition by the scholars next summer, for the best results in potted and cut flowers from the open garden.

THE FLOWER GARDEN.

SPIRÆA PALMATA.

"AMATEUR" (p. 524) does not appear to have been very successful in flowering this beautiful hardy herbaceous plant. All the Spiræas like abundance of water, and mine are therefore planted either in, or on the margin of an artificial bog, which can be flooded at pleasure. And herein lies the whole secret—water. My specimen of *S. palmata* has been in its present position three years, and at this date (May 25) has nearly fifty flowering stems upon it close upon 3 ft. high. Its foliage is very decided and striking in character, and its flowers are attractive a long time before they are fully expanded. The bog in question is flooded daily, and of this flooding, the roots of *S. palmata* get the benefit. Protection in winter it has none, beyond what may be afforded by its own leafless stems and any stray leaves which are caught therein. As soon as the buds start in spring these stems are cut off and all leaves cleared away. Manure water is never used; the soil is the ordinary garden mould, very light and gravelly, enriched at planting time with plenty of decaying manure. Unless your correspondent supplies abundance of water, I think he made a mistake in planting against a wall, as the soil of such a position is generally exceedingly dry. Such a spot would be most suitable as supplying warmth and shelter, but unsuitable because of its dryness. I would advise him to form a saucer-like hollow round his plant, and to fill it once or twice a day with water. Should there be any danger of such treatment causing dampness to the wall or building, the plant had better be removed to a sheltered spot in the open, where I hope he will succeed better with it. One point more I would like to insist upon—have patience. Nurserymen's plants are generally very small, and often have their naturally hardy constitutions weakened by forcing, or by minute division. The following Spiræas are all growing here in the manner above described, viz., *S. Aruncus*, *S. A. Humboldti*, *S. Filipendula*, *S. F. fl.-pl.*, *S. palmata*, *S. Ulmaria variegata*, *S. venusta*, *S. japonica* (Hoteia), and *S. j. variegata*.

EDWIN JACKSON.

Llandegai, Bangor.

—"Amateur" must grow his *Spiræa palmata* out-of-doors for two seasons before he will be able to do any good with it for forcing. About five years ago I obtained a plant of this *Spiræa*, which at the time had two crowns. I at once divided and planted it outdoors in good rich garden soil; for two years we kept increasing the stock, taking the plants up every year and dividing all up into single crowns. They grew rapidly and strongly, and the last two years we have been rewarded with some fine examples each year, both for blooming in and out-of-doors. At the present time we have some plants that were potted in 8-in. pots, carrying from five to eight spikes of bloom each. We have not forced this *Spiræa* very early, as I am under the impression that so treated it would not bloom satisfactorily. Like all the *Spiræas*, it delights in plenty of moisture, both at the root and overhead. When growing and when just showing flower it is greatly benefited by being watered with manure water. I am surprised that "Amateur" cannot get this *Spiræa* to grow, as with me it seems to flourish wherever it is planted. It receives no special treatment, but is planted out-of-doors in the usual way along with *Spiræa japonica*. After blooming the plants forced this season are allowed one year's rest in the open ground, when they are lifted the following autumn for forcing. It is a valuable plant either indoors or in the herbaceous border, where it makes itself quite a home.

R. GREENFIELD.

Priory Gardens, Warwick.

I have seen this plant in the greatest beauty forced in Messrs. Perkins' nursery at Leamington. I have, however, never been able to flower it myself, either forced or in the border. It is, like that lovely shrub *Spiræa aræfolia*, more beautiful in bud than in full flower. I am trying it now at the edge of a tub full of water.

M. E. G.

Double Cuckoo-flower.—Amongst hardy flowers few will be found to give more universal satisfaction than this, for, although like the type, which in many districts colours the meadows with its soft-hued flowers, it delights in damp, almost swampy situations; it will grow vigorously almost anywhere. The ease with which it adapts itself to circumstances is, indeed, a great point in its favour, for it seems to be quite at home in the confined precincts of a town garden, and is one of the finest hardy flowers that the town gardener can invest in, demanding, as it does, so little cultural care, and never failing to yield a dense mass of very double, delicately coloured flowers. I do not know of any other hardy spring flower that exhibits just this pleasing shade of colour, the effect of which, in the case of large specimens and when many plants are massed, is pleasing and grateful to the eye.—J. C. B.

DAFFODILS.

I AM obliged by the kindly remarks of Mr. Burbidge upon my rough notes on the Daffodil, and have referred to the paragraph he cites under the head "Explanation of Plates—Plate vi.," wherein it is certainly stated that "Mr. Tyerman had supplied two forms of *N. Pseudo-Narcissus* from Tregoney with pale, sulphur-tinted perianth segments and clear yellow cups, and these were exactly intermediate links in the chain which unites this beautiful variety with the common type of the species" (viz., bicolor). On turning to plate vi. it gives us the large bicolor of our gardens, and there is nothing to show that Mr. Tyerman's specimens were wild ones, which was my point.

Mr. Burbidge has a "plate iii." of the *N. Pseudo-Narcissus*, wherein A is the wild form, tinted evenly, and there is no remark here of any bicolor wild varieties. I think, therefore, I am correct in my statement that this observation is not to be found in Mr. Burbidge's work. I consider that there are two wild forms—the self yellow and the bicolor—and that from these arise the two sorts which prevail throughout the series. When spring comes round again I will try to send Mr. Burbidge some blooms, which will show him how nearly the wild form of Daffodil, as it grows here, approaches the bicolor type.

My garden was visited during the Daffodil season by the Lancashire Botanist's Society, with such good botanists as Mr. Percival, Mr. Rogers, and Mr. Leo H. Grindon, and to all these I pointed out this striking fact, so there cannot be any doubt about it. There is just as little doubt also as to the fact that our Lancashire *N. Horsfieldi* is a finer flower than its Yorkshire rival the *Empress*. Messrs. Rodger, McClelland & Co., of Newry (Mr. Burbidge's near neighbours), wrote to me on May 24: "You are quite correct about the superiority of *Horsfieldi* to the bicolor *Empress*." Mr. Barr has also written to me that he considers *Empress* the finer flower. I would suggest that we have a little competition next year, say in the good old style, for a copper kettle, and I for one will show *Horsfieldi*. Possibly our Lancashire flower likes Lancashire air, and does not thrive so well in the south. My bulbs of *Empress* were supplied by Messrs. Backhouse, of York, and I suppose there can be no doubt about their being true. If Mr. Barr or Mr. Burbidge will send me better ones I shall thank them.

WM. BROCKBANK.

Brockhurst, Didsbury.

FORMING A ROCK GARDEN.

HAPPILY gardeners, both amateur and professional, are becoming better educated as regards the beauties of Alpine plants, and the attention which they deserve, than they have hitherto been. A well-assorted collection always contains something interesting, even in winter; but well made rock gardens on which to show them off to advantage are yet comparatively rare. It cannot be urged that difficulty in their construction makes them so. Generally failures, where they occur, consist in an attempt at something elaborate and imposing from an artistic, rather than a natural, point of view. The question as to how the plants are to grow is often overlooked. Our first consideration ought to be what kind of a garden we wish to have—whether we wish, by the use of boulders, to represent the devastation brought about by glaciers, or by means of quarried stone of stratified character to represent the quieter looking strata, uninterfered with except by weather influences or climatic changes. If of a glacial arrangement you may have a few irregular mounds arranged as if streams of water had run between or amongst them. If arranged in a stratified manner you would need an undulating slope which occasionally dips below the general level, and from which there are here and there a few projecting mounds. In forming the outline a considerable amount of soil for a foundation work may be obtained where it is thought advisable to dip a little, always taking care to preserve the good top soil for mixing purposes. For the more elevated portions a mixture of good loam, peat, sand, and limestone grit will be found best for general purposes; any alteration in this preparation can always be made for particular kinds of plants.

The object in going below the general level should be to give an opportunity of forming something in the way of a bog garden, and in this part peat should be largely used. For stepping stones a stray boulder may be placed here and there. Nothing imposing should be attempted. All perpendicular or over-hanging arrangements should be rejected, for in any such places the chances are that nothing will be got to grow. Theory argues that in Nature similar arrangements are

furnished with suitable plants; but experience has taught me, that theory is very different from practice. And now, having made all arrangements for placing the stones, by giving a surfacing of soil 2 ft. deep, according to situation as above directed, that piece of work may now be proceeded with. It is best to have strata represented as cropping out at an inclining angle, and this should for practical purposes be towards the sun. As you commence so should you finish. That is, having commenced by representing strata cropping out at a given angle, your first laid stones should be your guide throughout. Here and there the monotony may be broken by rising mounds and other projections, but all the stones should be in stratified harmony. No two stones should have parallel faces, or be when in close proximity on a level. Nothing remains now but to choose suitable plants, and plant. Matters on which abundant information may be found in the pages of *THE GARDEN*.

As to the boulder formation having outline and soil prepared, all that need be said is that the stones should be very nearly buried.

T. D. HATFIELD.

ECHIU PLANTAGINEUM.

THIS is one of the handsomest of the annual or biennial species of *Echium* or Viper's Bugloss, yet one seldom meets with it outside of a botanical collection. It has showy flowers of a rich purplish violet disposed thickly in long slender wreaths that rise erect from the tuft of broad basal leaves. It is even handsomer than our two very fine indigenous species *E. violaceum* and *E. vulgare*, which were they not so commonly met with in a wild state, would undoubtedly be included among our choicest hardy flowers. *E. rubrum* is a scarce species, but extremely handsome. The habit of growth is similar to those above mentioned, but the colour is a showy reddish violet, similar to *E. creticum*, also an attractive plant. The Salamanca Viper's Bugloss, *E. salmanticum*, is another very fine species, though unfortunately difficult to obtain, except from its native locality. These five species which are now in cultivation are representative of the annual and biennial *Echiums*, and all are very showy and well worthy of a place in any garden. They are of the simplest culture;



The Viper's Bugloss (*Echium plantagineum*).

the seeds should be sown in ordinary garden soil either in spring for the current year's flowering, or late in autumn for flowering in early summer. They may occasionally be found enumerated in the catalogues of some of our best seedsmen as well as those on the Continent.—W. G.

Myosotis Weirleigh Surprise.—Will "Brockhurst" kindly inform us whether the above is of the *Myosotis dissitiflora* or *M. sylvatica* strain? If the former, it would prove as valuable as it is interesting, inasmuch as *dissitiflora* has up to the present refused to break into white or to diverge more from the normal type than in Mr. Allen's seedling *splendens*. As to the two colours in one, that is hardly to be desired, the unity and uniqueness of colour forming one of the chief charms of all the Forget-me-nots and similar plants.

I should, however, be extremely grateful for a white strain of *M. dissitiflora*.—D. T. FISH.

THE BETONY GARDOQUIA.

(*G. BEFONICOIDES*.)

THIS plant is now probably the only one in cultivation representing a numerous genus of Labiates, of which there were at one time several species in gardens. It is a showy plant with creeping



The Betony Gardoquia (*G. betonicoides*).

roots and stems, rising 2 ft. or 3 ft. high when well grown, and terminated by a long dense spike of tubular flowers arranged in tiers, which open in succession. The colour is a bright rosy magenta, which is highly attractive; the flowers, moreover, are agreeably perfumed. All the species are natives of Peru, Chili, and a few are found in Mexico; they therefore require greenhouse treatment, though *G. betonicoides* has been grown very successfully in the open border. It is mentioned in the seed catalogue of Mr. Thompson, Ipswich.

W. G.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Aquilegia glandulosa.—Since writing my last week's note (p. 555), I have been to Kew, and, with the kind help of Mr. Baker, referred to the original specimen of *A. glandulosa*, sent by Prof. Regel, of the St. Petersburg Botanic Gardens, from the Altai Mountains. It is a different plant from the *A. glandulosa secunda*, being more than twice as tall and in every way more robust. The specimen at Kew is nearly $1\frac{1}{2}$ times the height of the large folio paper in which it is preserved, and the flower measured $4\frac{1}{2}$ in. in diameter. The plants in Kew Gardens are not this variety—the true variety—of *A. glandulosa*, and, as far as I know, it is not to be found with any of our nurserymen.—BROCKHURST, *Didsbury*.

Seedling Columbine.—*Dr. Stuart.*—A very beautiful plant resembling *A. glandulosa*. Hybrid and seedling *Aquilegias* are generally such poor things that we are disposed to doubt its being one. Of its great beauty there can be no doubt, and we hope you may be able to perpetuate it.

Polyanthuses.—We have now a very fine show of these both in beds and borders, and we find them extremely useful as spring bedding plants, standing, as they do, any amount of cold, whilst our *Myosotis*, *Arabis*, *Wallflowers*, *Violas*, &c., have been terribly cut up during the severe windy weather which we have experienced here.—MILTONIAN.

Lathyrus Drummondii.—If this pretty Everlasting Pea was as common in gardens as the *Lathyrus latifolius* or *grandiflorus*, our gardens would be gay with Everlasting Pea flowers much earlier than at present. *L. Drummondii* is now masses of bloom and flower buds. It is a very robust grower and perfectly hardy. The flowers are borne in clusters like those of *L. latifolius* and are of a bright carmine hue. These Everlasting Peas are more generally found about cottages than in large gardens, and yet in these latter there are few spots that they would not adorn. Any old tree stump, or the side of a trellis or a summer house, or similar places, are just where the *Lathyrus* delights to grow undisturbed. *L. grandiflorus* has the most telling colour, and its twin blooms borne on long stems make them specially acceptable in the shape of cut flowers.—A. D.

HARDY PLANT CULTURE AT WISLEY.

MR. WILSON is so well known as an enthusiastic and successful grower of hardy flowers, that a few notes concerning his new experimental garden at Wisley will, I have no doubt, be of interest to your readers. He has been fortunate in obtaining a piece of ground, which unites in itself capabilities of an exceptional and varied character for the growth of hardy plants, and, judging by what one sees there as the result of some two or three years' work only, this garden is likely to become one of unusual interest. Almost every kind of soil and situation is there to be found; all that is required is the skill to place each plant in its proper position; thus, in one place one sees such moisture-loving subjects as the Swamp Lily, the Gentians, *Epigaea repens*, &c., in situations marked out as it were by Nature for them, whilst in near proximity one remarks such lovers of sunshine as the *Calochorti*. The greater portion of the Wisley garden occupies the north side of a hill, the ground, sloping gently, terminates in a woody swamp, in some places so quaggy that the soil trembles under the foot as one passes over it. The natural soil in this moist wood is just about the same as that which prevails in some of the German and Belgian forests, and which is so highly prized in those countries for potting purposes. It contains a rich store of food, just suited to the wants of most plants that affect swampy, partially shaded situations. As illustrating the capabilities of this particular portion of the Wisley garden, I may mention that *Sarracenia purpurea* and *Darlingtonia californica* appear to be quite at home there, the former especially finding the situation to its liking, the pitchers being healthy and fresh, showing no traces of the winter's handiwork, whilst the decayed stems of *Lilium superbum*, more than man high, testify to the luxuriant growth made by this Lily during the past year. Speaking of Lilies, Mr. Wilson has found reason to modify his views concerning the best kind of soil for *L. auratum* in the open ground. Hitherto he has considered sandy peat the proper rooting medium for open-air culture, but he has recently discovered that this Lily under certain conditions thrives in loamy soil and in full sunshine. A large space of ground on the hillside is devoted to this Lily, and although, as before stated, the slope is towards the north, there is no actual shade, and, judging by the way in which the new growths are coming through, both soil and situation must be favourable. Mr. Wilson believes that in the culture of this Lily much depends upon the amount of moisture available during the hottest period of the year, and that when throughout the growing season the roots obtain a never-failing supply, the bulbs are then enabled to make their growth and mature as they should do.

One portion of the Wisley garden presents a somewhat peculiar appearance. At first sight one would suppose it to be occupied by a sheep-fold, but nearer examination reveals the fact that this assemblage of hurdles forms the propagating department. A row of small hurdles, or, as they are termed in many parts, wattles, is pitched to run from east to west, and where each wattle touches its neighbour another is fixed to run towards the north, thus forming a number of little pens, the congenial home of thousands of young seedlings, some, too, being tenanted by choice Primroses, &c., which seem to delight in the protection thus afforded them. There can be no doubt as to the practical value of this method of raising hardy plants from seed. It is simpler and better than sowing in pans, which are so apt to suffer from want of moisture or careless watering. Thousands of plants may be raised in this way at the expenditure of, comparatively speaking, but little time and trouble. Where the naturalising of hardy flowers is to be attempted on anything of a large scale, some simple and safe method of getting up a large stock of many kinds must be adopted, and I do not think that a much better plan than the one here practised could be devised. The wattles give the shade and shelter without in any way robbing the soil of its goodness and moisture, and for this reason are much to be preferred to hedges of any kind.

In various portions of the garden that have been subjected to spade cultivation, masses of Hyacinths, Narcissi, &c., are planted, producing a pleasing effect. *Anemone fulgens*, too, attracts the eye by its brilliancy, and *Trillium grandiflorum* and the American Dog's-tooth Violet charm with their quaintness and quiet beauty. Hepaticas are planted here, there, and everywhere in the open, and in the partial shade of the deciduous trees, so that in due time we may expect to hear something interesting concerning these little gems. One little "dodge" though, I should mention, and that is the placing of a large piece of ragstone in such a manner as to screen such as are in open positions from the noon-day sun. The stone, being partly buried in the soil and leaning slightly towards the plant, not only protects the latter to some extent against the sun's direct rays, but also helps to preserve to the roots a certain amount of moisture in hot, parching weather. One part of the Wisley garden is covered with a natural growth of Furze, with an undergrowth of coarse herbage, and here one finds little colonies of bright-hued

Primroses, looking quite happy and at home, to all appearance revelling in the shade, shelter, and repose, which they there enjoy, and giving promise of yearly increasing in vigour and beauty. Perhaps the most successful feature of this experimental garden—at any rate, it struck me as such—is where Narcissi, Primroses, Grape Hyacinths, &c., spring up with delightful irregularity from the fresh, bright, green Grass, and where double and other Primroses grow just as one sees the wild ones in their natural habitats. Here, too, one sees the Virginian Lungwort quite at home. Anything more charming than this little floral picture, where art and Nature are so skillfully made to go hand in hand, it would be indeed difficult to conceive.

J. CORNHILL.

ENGLISH PLANT NAMES.

HAVING already stated my views, I did not intend again to join in this controversy, but your notice of Mr. Elwes' letter tempts me. You mention three names of authority to support your views; but to my mind none of the three are much in favour of the particular views on the subject lately advocated in *THE GARDEN*. Professor Earle is speaking solely of British plants, for which he claims the use of English names, having specially in view the old names with which he is so conversant, but this is no argument for the invention of new English names for exotics. Mr. Ruskin's views in "*Proserpina*" are very pleasant reading, but the names he proposes are so peculiar that it is quite certain that the editor of *THE GARDEN* would not accept them, nor would Mr. Ruskin accept those proposed in *THE GARDEN*. Professor Thurber's new name for the *Chionodoxa*, "*Snow Glory*," is simply the literal translation, and as such would be accepted by Mr. Elwes; but what he and I and others object to is an entirely new name, which may be very pretty and suggestive, but which has no connection with the received scientific name. I have watched the progress of the new system with much interest, but I cannot say that I am the least converted to it. The only result I can at present see in it is a multiplication of names instead of increased simplicity. As I now read *THE GARDEN* I am often sorely puzzled what plant is meant by a name that is entirely new to me till I see its more familiar scientific name, and I am sure that to many besides myself the new name (except when it is a translation) is only an interpretation of *ignotum per ignotius*—the interpreter is the harder to understand of the two.—HENRY N. ELLACOMBE, *Bitton Vicarage, Bristol*.

The practice of the authorities we mentioned in giving English names to plants is entirely in favour of what we urge. As Mr. Ellacombe only mentions Professor Earle in particular, we quote here what he does say, and it will be seen that it is of general application. When he speaks of the material for the study of botany being at our doors it will be remembered that the contents of our gardens are mainly exotic. At every step we see exotic plants in cultivation, while many British plants are unknown to gardening people, and will remain so, except to the few.

"Botany (says Mr. Earle) has this great practical advantage over all other sciences as a means of universal culture, that the materials are the most generally accessible of any scientific material in the world. . . . What is needed is that its terminology should be popularised. . . . Historically, almost the first of sciences, botany is naturally and educationally first in order to the enquiring mind. Its objects are near our homes, awakening to our minds and inviting to our touch. Botany is adapted to be the universal preparatory science, the science to infuse the scientific sense. Why should we allow a pile of heterogeneous names to stand as a barrier between our people and the fairest gate of knowledge? These strange names are all but barren of interest in themselves; what interest they possess springs wholly out of the objects they represent. The objects and their mutual relations might be learnt quite as effectually through congenial names if only one-thousandth part of the labour that has been expended on those were bestowed on these."—(*English Plant Names*. Clarendon Press, p. cix. and following.)

Let it be noted that we, who ask that even what can be done in our own day to give us English names for the plants and trees in our gardens may be done, have also the support and the encouragement of the highest scholars. Among our correspondents there is one whose scholarship is beyond all doubt, who, habitually in writing to us, uses English names for hardy plants, even when it is difficult to find a happy or an accepted one. What a great critic, a scholar, a good artist, and one of the keenest observers of Nature that has ever written in our language thinks of the difficulties of the usual nomenclature we shall see further on.

We would willingly accept any good English name from Mr. Ruskin or anyone else who could find a happy name for an exotic plant. Why only accept of Thurber's English name for *Chionodoxa*, because it is a translation in the face of the facts that the greater number of good English names of either native or foreign plants have nothing whatever to do with the translation of the Latin names Christmas Rose, Traveller's Joy, London Pride, and Evening Primrose, to wit among numerous examples. Good reasons have been given before why the translation of the Latin name is by no means always the best English name; but the opponents of English names do not meet these reasons; they merely express their dislike to any efforts to help in this most desirable improvement. Cape Pondweed is better than a translation of *Aponegeton distachyon*. Reflection should show them that those outside of the strictly botanical class can never take much interest in technical nomenclature. They place, as Professor Earle expresses it, "a barrier between our people and the fairest gate of knowledge." Do they desire to possess people with these strange names, "all but barren of interest in themselves?" Then the best way is to begin by teaching plants through the English names, and then the way would be more clear for the study of the accepted classification. English names cannot, in our own day, follow any one system, because they are in America, Australia, other colonies, and at home, given for many different reasons, and in various ways. Many of the names can never, probably, be altered; nor is it desirable they should be. They are frequently as suggestive of some aspect of the plant, its qualities, or its place of growth as the Latin name. All we can do is preserve and use the best of those English that have come to us, and give the most fitting name to any new plant likely to be known in our gardens and woods. The objectors say, "We do not object to old English names, but you must not apply new ones!" Any cottager might apply an English name a generation or two ago, "but you," they imply, "who have such large means of making known a good plant in England or America must not give a new English name!" But we have given many, and hope to give many more, and we are glad to notice that our friends in the New World adopt these names, and that they have boldly begun to follow suit, and to give "foreign plants" English names.

There is no new system, nor can there be. There is simply a determination to use an English name wherever it can be obtained. The names that puzzle Mr. Ellacombe are mostly English ones applied by the English people in America to the plants and trees they found there, or old English names given in old English garden books.

To Mr. Ellacombe, naturally, the scientific names are "more familiar." But the surprising thing is that he has no thought for those to whom no scientific names are familiar, and that he and Mr. Elwes will only allow one of these less fortunate persons to talk about a plant in the dog Latin so dear and so high sounding to youthful persons in botanic gardens. We have hitherto found space for such protests, but shall do so no more, having found objection, but no good reasoning in them. If expressed at all, such views must hitherto be in any of the numerous periodicals wholly in technical language. The world swarms with such periodicals, while we are the first and the only one that, while wholly devoted to a branch of knowledge involving many technical names, have after long consideration (and opposition even) arrived at the conclusion that the desire on the part of the public for English names is a healthy one, and that it ought to be met, no matter what difficulties—and they are many—that come in the way. All but the very commonest plants we mention have the Latin name given in brackets, which ought to meet every want in a paper avowedly and exclusively devoted to horticulture. However, we are under no illusions about the matter, and know well that anything we may do can but modify, in a very slight degree, the ocean of strange sound "which bars the fairest gate to knowledge." Generations will probably pass before any useful system can be elaborated, but it is something gained that scholars and thinkers see the bad effect of the system in vogue. Our own columns are unhappily often flooded with technical names. How much it injures their usefulness we have a better means of knowing than any of our correspondents. These remarks may, perhaps, be most fittingly concluded by the annexed from Mr. Ruskin's "Proserpina," in which he tells experiences of the accepted botanical lore which we all duly honour.

MR. RUSKIN ON BOTANY AS NOW TAUGHT.

YESTERDAY evening I was looking over the first book in which I studied botany,—Curtis's Magazine, published in 1795 at No. 3, St. George's Crescent, Blackfriars Road, and sold by the principal booksellers in Great Britain and Ireland. Its plates are excellent, so that I am always glad to find in it the picture of a flower I know. And I came yesterday upon what I suppose to be a variety of a favourite flower of mine, called, in Curtis, "the St. Bruno's Lily." I am obliged to say "what I suppose to be a variety," because my pet Lily is branched,* while this is drawn as unbranched, and especially stated to be so. And the page of text, in which this statement is made, is so characteristic of botanical books, and botanical science, not to say all science as hitherto taught for the blessing of mankind; and of the difficulties thereby accompanying its communication, that I extract the page entire, printing it, as nearly as possible in facsimile.

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ANTHERICUM LILIASTRUM. SAVOY ANTHERICUM,
or ST. BRUNO'S LILY.

Class and Order.

HEXANDRIA MONOGYNIA.

Generic Character.

Cor. 6-petala, patens. Caps. ovata.

Specific Character and Synonyms.

ANTHERICUM *Lilium* foliis planis, scapo simplicissimo corollis campanulatis, staminibus declinatis. *Linn. Syst. Vegetab. ed. 14. Murr. p. 330. Ait. Kew. v. 1. p. 449.*

HEMEROCALLIS floribus patulis fecundis. *Hall. Hist. n. 1230.*

PHALANGIUM magno flore. *Bauh. Pin. 29.*

PHALANGIUM Allobrogicum majus. *Clus. cur. app. alt.*

PHALANGIUM Allobrogicum. The Savoy Spider-wort. *Park. Parad. p. 150. tab. 151. f. 1.*

Botanists are divided in their opinions respecting the genus of this plant; LINNÆUS considers it as an *Anthericum*, HALLER and MILLER make it an *Hemerocallis*.

It is a native of Switzerland, where, HALLER informs us, it grows abundantly in the Alpine meadows, and even on the summits of the mountains; with us it flowers in May and June.

It is a plant of great elegance, producing on an unbranched stem about a foot and a half high, numerous flowers of a delicate white colour, much smaller, but resembling in form those of the common white lily, possessing a considerable degree of fragrance, their beauty is heightened by the rich orange colour of their anthers; unfortunately they are but of short duration.

MILLER describes two varieties of it differing merely in size.

A loamy soil, a situation moderately moist, with an eastern or western exposure, suits this plant best; so situated, it will increase by its roots, though not very fast, and by parting of these in the autumn, it is usually propagated.

PARKINSON describes and figures it in his *Parad. Terrest.*, observing, that "divers allured by the beauty of its flowers, had brought it in into these parts."

Now you observe, in this instructive page, that you have in the first place, eight names given you for one flower; and that, among these eight names, you are not even at liberty to make your choice, because the united authority of Haller and Miller may be considered as an accurate balance to the single authority of Linnæus; and you ought therefore for the present to remain, yourself, balanced between the sides. You may be farther embarrassed by finding that the *Anthericum* of Savoy is only described as growing in Switzerland. And farther still, by finding that Mr. Miller describes

* At least, it throws off its flowers on each side in a bewilderingly pretty way; a real Lily can't branch, I believe: but, if not, what is the use of the botanical books saying "on an unbranched stem"?

two varieties of it, which differ only in size, while you are left to conjecture whether the one here figured is the larger or smaller; and how great the difference is.

Farther, If you wish to know anything of the habits of the plant, as well as its eight names, you are informed that it grows both at the bottoms of the mountains, and the tops; and that, with us, it flowers in May and June,—but you are not told when, in its native country.

The four lines of the last clause but one, may indeed be useful to gardeners; but,—although I know my good father and mother did the best they could for me in buying this beautiful book; and though the admirable plates of it did their work, and taught me much, I cannot wonder that neither my infantine nor boyish mind was irresistibly attracted by the text, of which this page is one of the most favourable specimens; nor, in consequence, that my botanical studies were—when I had attained the age of fifty—no farther advanced than the reader will find them in the opening chapter of this book.

Which said book was therefore undertaken, to put, if it might be, some elements of the science of botany into a form more tenable by ordinary human and childish faculties; or—for I can scarcely say I have yet any tenure of it myself—to make the paths of approach to it more pleasant. In fact, I only know, of it, the pleasant distant effects, which it bears to simple eyes; and some pretty mists and mysteries, which I invite my young readers to pierce, as they may, for themselves,—my power of guiding them being only for a little way.

Pretty mysteries, I say, as opposed to the vulgar and ugly mysteries of the so-called science of botany,—exemplified sufficiently in this chosen page. Respecting which, please observe farther: Nobody—I can say this very boldly—loves Latin more dearly than I; but, precisely because I do love it (as well as for other reasons), I have always insisted that books, whether scientific or not, ought to be written either in Latin, or English; and not in a doggish mixture of the refuse of both.

NOTES FROM NEW ENGLAND.

American Beech Trees.—Beside my house are six large American Beech trees (*Fagus ferruginea*), and a finer group I never saw. They average 58 ft. in height, 6 ft. in circumference of trunk, and the branches reach out from the stems some 35 ft. on each side. They are clean-looking trees, with smooth light gray bark, and a heavy leafage, which is not subject to insect vermin. Although they are common forest trees with us, we have no nobler ones for avenues.

The Golden Corydalis (*C. aurea*).—This is a little annual species which in May and early June is one of the very prettiest of plants in our rockeries. We let it grow wherever it will among the stones, where it sows itself freely and enjoys the sunny places. Its blossoms are bright golden yellow and copious, and its habit bushy, compact, and neat. It needs no care beyond letting it alone.

The Canada Columbine (*Aquilegia canadensis*).—Outside of the garden borders most people are unacquainted with Columbines, but to see them at their best you should behold them among the rocks. The Canada Columbine grows in abundance in our woods and always in high rocky places; there it springs from the narrowest chink a little bush of leaves and flowers, or maybe in a earthy mat upon a rock you find a colony of Columbines, Virginian Saxifrages, and pale Corydalis; they usually grow together.

White Bluets (*Houstonia cœrulea* var.).—In THE GARDEN last year I mentioned that some Bluets I gathered on the White Mountains had white flowers when growing there, but on removing them hither their blooms assumed a bluish shade like those of our ordinary meadow sort. The few I brought home grew remarkably well, and I increased them to a patch a yard square. They have been in bloom now a month, and their flowers are just as white as they were in their mountain homes; and, too, the flower as well as the plant in all its parts is larger than the ordinary *H. cœrulea*.

Lilies from Seed.—I thank "F. W. B." for his interesting note (p. 315) in answer to my query. Of all Lilies perhaps *L. superbum* is the easiest to get a hasty stock of from seed. I sowed some seed of it out-of-doors in the spring of 1878, and the seedlings raised therefrom blossomed in 1880. They were never disturbed. On the ground around our old plants of *superbum* multitudes of seedlings come up every year.

The Bearberry (*Arctostaphylos Uva-ursi*).—Just now, the middle of May, the Bearberry is in blossom, its creeping branchlets being dotted over with little pink-tinged white flowers, which will soon be followed by red berries. At any time this is a comely plant. It is evergreen and trails over and among the rocks in high, dry, and exposed places; it grows in the sand, or, in fact, in any starvingspot that is exposed and dry. Its roots extend further than its top,

hence it is a hard plant to lift in safety for transplanting, but once established in the garden it makes itself at home.

Rhodora canadensis.—Last November I got a horse and cart and went out in the neighbouring wild places, whence I brought home a load of *Rhodora* and *Kalmia*. The *Rhodora* is now in full bloom and a lovely sight it is; its rosy pink flowers begin to open before the leaves begin to grow. In cold peaty land it grows around here by the acre; single plants are hard to get, they are so matted together. I lifted them in large clumps. The *Kalmia* will blossom later.

Smilacina stellata is not a showy plant, still it flowers quite prettily in May, when the Violets and Trilliums are in bloom. What I admire about it is, it will grow under heavily shading trees right up to the base of their trunks, and that, too, in dry places. There are not many plants that will do this. Many will do it if the surface of the ground is moist, rich, and loose, but when bare, hard, and dry this *Smilacina* has not many rivals for such a purpose.

Botanic Garden, Cambridge, Mass.

W. FALCONER.

THE GARDEN FLORA.

PLATE CCLXXXVIII.—THE BLUE-FLOWERED SAGES.

THE genus *Salvia* affords some of the finest blue flowers we have in cultivation. There is the very hardy Meadow Sage (*S. pratensis*), which is found wild in a few places in England, and is a showy, free-growing species, 2 ft. to 3 ft. high. The flowers, it is true, are not of so rich and intense a blue as those of some other species, but they are produced so freely that it is well deserving of a place in the garden. Moreover, there are white and scarlet-flowered varieties of this species. They flower in late spring and early summer. Pitcher's Sage (*S. Pitcheri*), the subject of the accompanying plate, was cultivated in the Geneva Botanic Garden as long ago as 1838, soon after it was first discovered, and was re-introduced about seven or eight years ago. It is usually stouter than it is depicted, sometimes attaining a height of 4 ft., even in a wild state. It is a native of Arkansas and Texas, and requires a sunny place. *S. azurea* is a closely-allied species from the same region, or rather of South Carolina and Georgia, but it has smaller flowers and nearly smooth leaves. This also has been in cultivation. Of all the blue-flowered species, the bearded blue Sage (*S. patens*) is, doubtless, the most brilliant in colour, being surpassed by none and equalled by few flowers in cultivation. Although not hardy, it is easily preserved through the winter, and it is easily propagated from cuttings. *S. candelabrum*, a native of the south of Spain, is a half-shrubby species like the kitchen Sage, and has similar foliage, associated with ample panicles of rich violet and white flowers, borne on long stalks, clear of the leaves. Mr. Thompson, of Ipswich, had it growing about five and twenty years ago. *S. angustifolia* is another species closely allied to *S. Pitcheri*, but not equal to it as an ornamental plant, and less hardy. *S. ianthina*, *S. amethystina*, *S. cyanea*, and *S. mexicana* are robust-growing, allied species, inhabiting Mexico, and of about the same degree of hardiness as *S. patens*. All of them are handsome plants, and have been cultivated in English gardens, but I am not sure that one of them is now to be found growing in this country. *S. albo-cœrulea* is another of the same group, having large white corollas, with a blue lower lip. *S. cacaliæfolia* is similar to *S. patens*, having a more compact spike of less brilliantly coloured flowers. *S. Simsiana* is a very distinct, hardy species with pale blue flowers, each whorl subtended by a pair of ample, pinkish bracts. *S. dichroa* is a handsome species, discovered in Morocco by Mr. Maw, and introduced by him into this country. It is a robust plant, and in the colouration of the flowers is similar to *Collinsia bicolor*.

Culture and Position.—All the above are amenable to greenhouse culture with the exception of *S. pratensis*, which being perfectly hardy thrives best in the open border. Many of the other kinds named, if not all, may be planted in the open ground in summer, and lifted again in autumn before frosts set in, so as to flower in the greenhouse throughout the winter and spring. The best kinds for this purpose are *S. Pitcheri*, *ianthina* and its variety *Hoveyi*, *patens*, and *albo-cœrulea*. The treatment of these in pots is simple in a moderately warm greenhouse, and all may be propagated easily.

The specimens from which our plate was prepared came from Messrs. Cannell & Sons' nursery, Swanley.



SAMOLUS FITCHII

GARDEN DESTROYERS.

THE HOLLY FLY.

(PHYTOMYZA AQUIFOLIA.)

ONE may often notice that the leaves of our Holly trees are much blistered and discoloured, giving the tree quite an unusual appearance, and in the case of some trees which are grown as ornamental specimens very much disfiguring them. The cause of this annoyance is the grubs of the Holly fly, which burrow beneath the upper skin of the leaves, feeding on the internal substance or parenchyma of the leaves, the skin remaining uninjured and forming large blisters. I am not aware that trees are ever killed by the attacks of these insects, but they must often be seriously weakened by the destruction of their leaves, particularly when, as is sometimes the case, every leaf contains one or more grubs. There is not much that can be done in the way of destroying this insect, except the tedious task of picking off the affected leaves and burning them, or pinching the blisters well, so as to kill the grubs or chrysalides. No insecticide will reach the insects in their well-sheltered position, and the transformations of the insects are all gone through without their quitting the leaves until the fly leaves the chrysalis case and takes wing. Certain small parasitic flies, however, find out the grubs or chrysalides and deposit their eggs within them, the

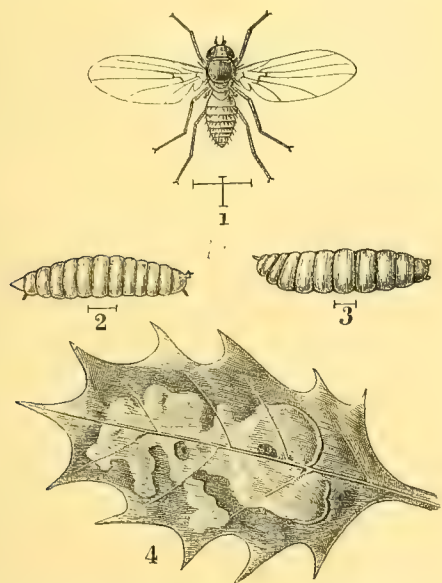


Fig. 1, the Holly fly; fig. 2, grub of ditto; fig. 3, chrysalis of ditto (all magnified); fig. 4, Holly leaf, showing blisters formed by the grubs.

parasitic grubs from which soon destroy them. The Holly fly may be taken in a butterfly net when flying about the trees, but as the flies are small and inconspicuous in colour, I very much question whether enough would be caught to render it worth while to try and destroy them in this manner. The flies make their first appearance in May or June, and lay their eggs singly beneath the upper skin of the leaf, sometimes depositing only one, sometimes two or three in a leaf. The grubs, when hatched, gradually eat their way about the leaf, sometimes for a short distance forming a narrow track or mine, but they usually at once begin to work round, moving sideways almost in the segment of a circle, and soon form large blisters. The grubs are blind and entirely destitute of jaws, but their mouths are provided with a kind of double-pronged hook, with which they scrape off small portions of the flesh of the leaves; they become fully grown in February or March, and then each makes a hole through the upper skin of the leaves, after which they become chrysalides. On the head of the chrysalis is a short beak, which protrudes into the hole in the skin formed by the larvæ, so that when the fly is formed and wishes to escape, it can easily do so by merely breaking through the chrysalis skin at the head, whereas if it were imprisoned under the skin of a leaf it would be impossible for it to make its escape. The position of the head of the chrysalis in the leaf may always be detected by a dark dot, surrounded by a reddish patch. This

insect belongs to the Natural Order Diptera, or two-winged flies (an Order which probably contains as many different species as any other, and includes the gnats, house-flies, and all two-winged flies), and the family Muscidae. The genus *Phytomyza* contains about twenty species. *P. aquifolia* (fig. 1) is about $\frac{3}{8}$ in. long, and measures about $\frac{1}{10}$ in. across the wings when they are fully expanded. It is brown in colour; the eyes are nearly black, the legs are long and slender, and somewhat paler in colour than the rest of the insect. There are a few stout hairs on either side of the thorax, and each joint of the body is fringed with hairs. The nervures of the wings are pale brown. The grubs, when full grown, are nearly $\frac{1}{2}$ in. long. They are smooth, shining, semi-transparent, and of a pale greenish-yellow colour. The grubs of this Order are generally legless, but these grubs have a pair on the first and last joints of their bodies; the last segment also bears a curious little organ with several joints; this is the apparatus through which the insect breathes, and which, in grubs belonging to this Order, is frequently a very curious and elaborate appendage. The chrysalis (fig. 3) is of a pale reddish brown colour; the joints are very clearly defined; from the head is developed a short beak, which, as was before mentioned, protrudes through the upper skin of the leaf.

G. S. S.

THE AURICULA.

BY THE REV. F. D. HORNER.

SOMETHING of the past history of this flower, and something of the qualities that constitute its grace and beauty in the eyes of those to whom it is a very dear favourite, will add, I trust, to the interest with which it is generally regarded. This plant has so long been under the care of man, that, like his domestic animals, though sprung from a naturally wild and hardy thing, it would not live apart from him, and without that attachment on his part which it seems to so faithfully appreciate and reward. The Auricula is apparently a new comer, but in reality it is one of the very oldest of show flowers, for there were exhibitions of Auriculas in Lancashire more than 150 years ago. Indeed, to anticipate a little, I might have brought a plant of a venerable sort, called "Jingling Johnny," shown at Eccles, then a straggling village near Manchester, a round century since. But the public career of "the Jinger," as he was familiarly called, is closed, his long days nearly numbered, and no reasonable extension of a class list could now set him up again on a pinnacle of floral fame. Now we are accustomed to see such excellencies of form, colour, and habit in exhibition plants as are not found in the uncultured species from which they may have sprung. But in so high a degree have all these points been gained in the Auricula, that it is nothing short of an acquired flower, developed past resemblance to any wild original. I propose to divide my subject into three sections, and will trust to make none of them too tedious. The first shall be upon the derivation and history of the flower; the next, the Auricula from a florist's point of view; the last, a very brief touch upon its culture—not that I have any secrets which silence should conceal. If there are any who so far only regard this flower with a cold and distant admiration as a new and rather curious feature in a flower show, that ought to have novelty now and then to keep it up, I shall be glad if in any degree I can show how very much more than this a flower is to those who love it as the florist does.

The Primulaceæ.—In the botanical census by which plants are grouped according to Natural Orders, the Auricula is classed with the Primulaceæ. The family is a large one. Some of its members bear such resemblance to our most familiar type, the Primroses, as to be easily recognised for Primulas; others are apparently so far removed both from it and from each other as to seem no blood relations at all, but only distant connexions-in-law—botanical law. However, I shall not here introduce a larger circle of the Primula family than may be interesting, as showing the resemblance and dissimilarity of consorted plants. The nearest native relatives of the Auricula are the Bird's-eye Primrose (*P. farinosa*), frequent in the north of England in marshy places and on the broken banks of little moorland rills, and also *Primula scotica*, of Sutherland and Orkney. But after the Cowslip and Polyanthus what a mixed group the Primulaceæ appear! The Cyclamens belong to it, and the more aspiring Dodecatheons of America, with their not far dissimilar flowers clustered on tall stalks, as if they were the bold Oxlip form of the Primrose Cyclamen. Another classmate is the Anagallis, *A. arvensis* being the red Pimpernel of our arable lands, and *A. tenella*, the slender little beauty that threads its way daintily among the green Mosses on the peaty moors. Bitter marshes by the sea contribute a member to the Order in the Sea Milk-wort (*Glaux maritima*); while in that lovely aquatic, *Hottonia palustris*, the

Water Violet, we have the Primulaceæ taking a decided plunge under water, and here, as it were, a veritable mermaid Primula. Thus, from the top of a mountain to the bottom of a pond, we have Primulaceous plants as widely separated in habitat as in habit. Besides the Primula Auricula of the Alps, the remote ancestor of our cultured flower, and one given by Paxton as *hortensis*, a European plant, with name suggestive of some degree of cultivation, and flowers described as variegated, there are several Primulas of Switzerland and Southern Europe interesting, as bearing a resemblance to the Auricula on a small wild scale. There is *P. marginata*, with serrated mealed foliage and lilac flowers, with rudiments of that meal in the centre which is so intensely developed in the Auricula. Also *P. Balbisi*, with a habit and foliage in white and green, quite that of the Auricula, and half-pendent flowers, "like Cowslips when that hang the pensive head," and also slightly mealed in the eye. Again, *P. intermedia*, *P. pubescens*, *P. viscosa*, *P. villosa*, and others with pink and purplish flowers have the habit of diminutive Auriculas. Still, all primitive and allied forms are so far removed from the derived flowers of so long a period of culture as extends over 300 years, for Gerarde states that prior to 1597 there were Auriculas in English gardens.

Our First Auriculas.—These were yellows, browns, and purples, and as you look upon the beautiful flower of to-day in its jewellery of emerald and pearl and its velvet textures of many lovely colours, you will wonder how all this investiture of different orders of beauty descended upon a pale wild flower of the Alps. The first advances from the purely wild type were the results of carefully seeding this sportive flower, which in its attribute of infinite variability from seed has the fundamental qualification for being what is known as a florist flower. But more full and rich in illustration of this than written history well could be, are the interesting revelations which the Auricula makes to the raiser of seedlings. In them the history of the past will repeat itself in varied retrospect, and among those that must be discarded as missing the standards they were meant to equal or excel are many wherein faults are but tracings of their derivation towards its distant source. They show how petals, now substantial, round, and flat, had been flimsy, frilled, and pointed, the white meal thin and ill defined, the curious edge of green a slight and broken rim. In a glance at the history of the Auricula there comes of course the interesting question of its first introduction into England. When is perhaps not so exactly known as where, on which point there is the evidence of well-kept, unshaken tradition, corroborated by local evidence, that its early English home was especially Lancashire. It is known that Flemish weavers in woollens, driven from their country by persecution for their faith's sake, settled about 1570 at Norwich, Ipswich, and in Lancashire villages, in the neighbourhood of Rochdale and Middleton. As things of home too dear to leave behind them, these refugees brought with them their favourite flowers, the Tulip and Auricula. It is no matter for surprise that for about fifty years after this we have no record of Auricula culture. These early growers would doubtless for a time be shyly looked upon as aliens, and it would lead them to keep their occupations and interests a great deal within the bounds of their own communities; but in 1725 we have evident proof that the culture of Auriculas was established in Lancashire. Parkinson in his "Theater of Plants," 1640, names twenty-five varieties of Auricula *ursi*, or Bear's-ears, or French Cowslips. They are described by colours "such as Heaven's "blew," striped and double purple, blood-red, sundry blushes, paper-white, and yellowish-white, &c. In an old manuscript of 1732, Bear's-ears or Auriculas were quaintly classed as "pures," probably what we should call selfs; "flakes or stripes," which I confess I do not recognise by the description; and also "bizarres," spoken of as admirably variegated with meal and colours, and raised in England and brought from thence.

Auriculas in the Lancashire districts were grown abundantly until about 1830, when a great change in the habits of the people, who were hand-loom weavers, began to take place. Steam power and the factory system were being developed about 1825, and during the transition from hand to power-loom weaving those whose bread "came through the shuttle eye" felt the change severely, and numbers of them were for a time in great distress. From the hand-loom that filled the long window, they could now and again in the day break their time, and work longer at night; and in this way their favourite flowers received the most constant attention, which at the same time refreshed the toiler himself with a healthful, winsome recreation. But the long peremptory hours of a factory day rendered all this impossible. The great hard-featured mills grew up over green fields and garden grounds—mammoth organisms in brick and mortar, stone and iron, seeming in their high chimney-stalks to send up a mighty hideous sort of flower-stem, blossoming with black wreaths of smoke and sulphurous perfume! Then the scattered

villages grew and conglomerated into towns; the light of the old hand-weaver's windows died out, and seemed to be concentrated in the gaslight glare from the long stories of windows in the mills; the familiar clatter of the old hand-loom ceased, and the click of the shuttle that wove the silk or wool, as the tick of the old clock spun out the time. Under the changes of those days many ceased to grow their old favourites for lack of time or space, and because they would not see them languish under any unwonted neglect. Their little shows had nothing of the grand accessories that belong to some in these days but the very spirit of vitality was in them—sincerity, patience, and love. They were held in the upper room of some old inn, and made a very lively sensation for miles around—a stir like a village wake or fair. What excitement it was for the anxious exhibitors assembled in the room below to wait for the winning plants being sent down from the "upper element," where the judges were deciding fates! In the later part of the day followed songs, anecdotes, and florist gossip; and at going-home time the assembly dispersed with the first prize-men conspicuous by a gleaming copper kettle in hand; always kettles for the best flower in the room, and for the first in every class. Perhaps none was a prouder man that day than he who as a new beginner carried the "Colt's Kettle" home!

The Auricula has been a flower neglected for many years till lately. For inexorable causes, such as those that parted it from old friends like these, we can feel sympathy, but not for every reason that has made it now so scarce. Mr. Lightbody, whose name is so associated with the Auricula, used to tell me he had many wasteful customers, who every spring would write for a relay of large plants, much as they might order spring bulbs from their seedsmen. They kept Scotland going as we keep Holland; for Lightbody, who grew his own plants mostly in long-legged garden frames, would have been again and again exhausted but for being able to fall back on large collections in different parts of the country. The Auricula is no such forgiving plant as the docile Hyacinth, that in return for having its heart scooped out like an Apple in the cook's hand, will return manifold in good for evil, in repaying the unkindest cut of all with a mass of useful offsets. Auriculas grown only for a brief display, and left to pine in neglect afterwards, are not in the hands of men worth the name of florist. I have spoken of the Auricula in Lancashire, for that is such a representative county in the history of the flower; but fifty years ago we find by old records that almost every district in Yorkshire, Staffordshire, Cheshire, as well as Lancashire, had its circle of Auricula growers. So, too, had many other counties. In Cambridgeshire lived Richard Headly, a renowned florist and the raiser of one of our best Auriculas, George Lightbody. There were also shows and societies in the home counties and many growers about London, where Page's Champion and many other sorts of lesser fame were raised. But the Auricula is the oldest florist flower in precedence of excellence. There were good Auriculas when there were no Roses such as there are now, when the Pelargonium was a thin, imperfect thing, the Cineraria a star far from her present magnitude; when the Calceolaria had little of that fine inflation in which it now appears, a floral exposition of the ambitious frog who in the fable perished miserably in the attempt to enlarge himself to something much above his sphere, when Fuchsias were almost as they had been found, and the Gladiolus was yet but a botanical curiosity.

The Earliest Edged Auriculas.—I am indebted to the researches of one of our oldest florists, Mr. John Slater, for some interesting information about these. He has spent a long life in the very centre of Auricula culture, acquainted with many a grower, and even raiser of the old sorts. When I mention names I must ask you to attach more than a mere nominal importance to them in that our Auricula being a derived flower not found wild anywhere, no vast importations and auction sales of it are possible. Names have therefore here the weight of species. The raiser is the introducer, and his little garden is a native country. The very names are largely suggestive of the estimation and good report in which the flowers were held by their raisers. Hence they are expressive of greatness, prowess, and supremacy, and we have, *e.g.*, Champion, Hero, Conqueror of Europe, Rule All, Revenge, Bang Up, Glory, Incomparable, Freedom, Emperor, Ringleader, Complete, True Blue, and so forth. Very many of the old growers were also Gooseberry growers, and here too are names of like great import: Conquering Hero, Overall, Leader, Thumper, Crown Bob, London, Wonderful, and, not last, Roaring Lion. No one had the diffidence to name his new pet berry Second Fiddle or Knock-under! If he were a bird fancier he did not select Tomtit or Humming Bird, but chose him Ostrich, Eagle, and Peacock. It is quite time that our newspaper press, from the large dailies down to small provincial weeklies, had their seeming ignorance of what the big Gooseberry really is revealed to themselves. It might be that no dish of the genuine berry had ever smiled on editorial tables, or we should not have the big Goose-

berry in many of its varieties exquisitely flavoured a gibe and synonym for that which is vapid and inflated. From the florist has spread, however, the desire for great names to the producers of excellent fruits and improved vegetables, and that bold challenging is now indulged in alike by the knights of Flora and Pomona, and of the presiding deity of the kitchen garden, Chloris, the goddess of Greens! The earliest known varieties of Auriculas were Rule Arbiter, a green edge, and Hortaine, a white edge; these can be traced back to 1757, Potts's Eclipse following ten years later. As years rolled on there were other "Eclipses," notably Cockup's, and from this some better flowers were raised. All the green edges of that early period were of a pale colour and often destitute of dust or farina. Taylor's Victory was a highly-prized green in 1776, but of all the principal varieties of that time only Jingling Johnny, a green of inordinately broad edge; Lord Lee, a lovely carmine flower, but without meal; and Pillar of Beauty, a stiff and starched old white, are in existence now. Improvements were patiently carried on, until in 1821 we begin to find some flowers that are good or familiar names at present. Colonel Taylor and Booth's Freedom appear upon the scene, two green edges, of which a grower with good specimens would not be ashamed to-day. In grey edges Kenyon's Ringleader appears, the ancestral flower of that grand family in the greys, in which Lancashire Hero, George Lightbody, and Richard Headly are flowers of such high mark. At that time Taylor's Glory, was a first-prize flower, along with Lee's Bright Venus and others, and the best selfs were Whitaker's True Blue, still extant, Grime's Flora's Flag, and Redmayne's Metropolitan. I remember this last being sold for 24s. a plant, but half a century ago it grew in garden borders and might be had for 2d. a head. Ten years later (1831) the green edges were a stronger class by several flowers still to be found in old collections. Such were Pollitt's Highland Laddie and Standard of England, but nearly all the first prizes that year fell to Colonel Taylor. To the greys were added Syke's Complete, a good flower grown at present, and Grime's Privateer. White edges were augmented by Favourite and Incomparable, from Taylor, the raiser of Glory, and by flowers of less note. The selfs have additions, but the best is Othello, a round-petalled black flower that was much thought of. Another ten years (1841) and the most notable green edge is Page's Champion, once very plentiful, especially with the raiser, who was wont to throw surplus offsets into the Thames, but now exceedingly scarce, and one of the very few Auriculas difficult to grow in an impure air. At this period came Conqueror of Europe among the greys, with much sensation, and Ashworth's Regular, a small correct white edge, still valued by some old growers in the north. By 1851 some of Lightbody's flowers appear, such as Star of Bethlehem, but that and all others were outshone by the first appearance in 1846 of Lancashire Hero, Robin Lancashire's magnificent grey. Like many other light-mealed greys, it has the power of blooming in a green-edged form, and that generally occurs either on a truss from a young plant or one formed very early on an old one. The bloom of its middle life at mid-season is rich silvery grey. This surpassing flower is worth a word by the way. When first shown, which was at Rochdale, 1846, it was placed second to a flower inferior to it in character, Grimes's Privateer. Lancashire had then eight or ten plants of this seedling, and in his grief hastily sold all for a trifling amount. He offered a good deal more to have them back, but could not get them. From their first purchaser they passed to Mr. Jas. Cheetham, by whom it was eventually sent out. But it is truly Lancashire's Hero, and no name but that of Robin Lancashire should ever have been associated with this flower. It is the noblest type of an Auricula, and at its best there is no grey better. Our opinions are, however, divided, and some of us hold by Headly's George Lightbody as the model. This is a grand flower that was sent out in 1861, and the two greys will probably never pass out of cultivation while Auriculas are grown. They will meet immense competition and have worthy companions, but they are Auriculas right properly, and no florist wishes to see them discarded, but he will not rest till he has their equals. By 1861 we also had Campbell's Pizarro, then our brightest, roundest self of soft brown, together with more of Lightbody's flowers, and Campbell was busy for years at this time trying to give us a crimson self of standard properties. His work at that time extended over many years, and is a good example of a florist's patience. He started with a cross between the old carmine flower, Lord Lee, and a puce-coloured self of Martin's. At once he got the colour, but he lost the paste, Lord Lee having none, and when Mr. Lightbody reported to me his neighbour's success in two crimson selfs, Duke of Argyle and Lord Lorne, there had been failures past all count.

The Auricula from a Florist Point of View.—As regards this, I cannot do better than quote the words of a brother florist, the Rev. F. Tymons. He says: "The

points of a good flower are not arbitrary, as the uninitiated sometimes say, but really appealing to canons of beauty recognised and allowed by all who have made a study of the plant. Thus, as in any other matter of beauty or taste, the verdict of those most skilled in the subject is that which is entitled to weight. Rigid attendance to these points is of proportionate importance in any flower which is largely the creation of skill, stretching forward to some ideal standard. Capabilities of modification under culture so as to draw nearer and nearer to that standard is one of the prime distinctions of 'florists' flowers.' Among these none probably are more artificial creations than the Auricula. Hence the importance of a thorough knowledge of what a good flower ought to be."

Auriculas are divided first into two distinct groups, separated from each other by the marked feature of mealed or unmealed centres. Those destitute of meal are termed alpine, and their essential qualities are the unmealed centre and the heavily-shaded petal. The highest form in the alpine is the shaded petal and the golden centre, which last is not difficult to obtain except in such as have lilac or any shade containing blue. To admit shaded flowers of these tints it has been found necessary to allow a pale, almost white, centre, unmealed of course. This section is the hardest and most prolific of all Auriculas, and those that are grown in garden borders are alpine blood of more or less inferior strain. The other group is the Auricula Royal, containing all the edged varieties, which constitute the highest and most wonderful development of this flower. The green edges hold the highest rank of all, and are the only class in which a mealy habit of foliage never occurs. The contrast of their zones of emerald, black, and white in a setting of silver leaves would be very beautiful, but Nature denies this combination, though often granting the converse in white edges with green leaves. The green edges have required the most winning, for the edge must be absolutely pure from meal, and that has been found a very trying test. Now, however, this splendid property is becoming more brilliant and more fixed, but that it has been one of difficult attainment is shown by the very few true greens among the old varieties. The grey edges, a strong class, are those in which a sprinkling of meal, like hoarfrost upon springing Grass, lies delicately over a green edge without hiding it further than to give a pearly effect, as of a silver dew crystallised and secured upon it. The white edges are exquisitely fair and lovely—a very favourite class. The whole face of the flower, except the dark velvet rim of ground colour, lies deep under a snowy meal, usually of finer grain on the edge than middle of the flower. Good true whites have been very few indeed among the old flowers. Then follows that beautiful consort of the edged classes, the self. This, with its densely-mealed white centre and colour of one velvety unshaded and decided hue, is a very different flower from the alpine, and not the least approach of the one to the properties of the other can be tolerated. Such are the differences that form the class distinctions in the Auricula; we must look a little closer to see what those properties are that give expression and harmony to all. The perfection of a whole lies in the perfection of its several parts. I take a single flower part by part. In the centre the tube, with its contents, stamens and pistil, is a little member, but one of mighty import. So is the tongue in human kind, so is the tail of the dog among beasts. In power and variety of expression these two extremes meet. Their equivalent in the Auricula is its tube. No outer brilliancy compensates for a central failure here. The whole truth of the flower lies in this little well. It should be circular, sharply cut, and bright yellow. A rich gold tube bathes the flower in sunshine of its own, and lights up into life and radiance features that in themselves may be dull and common-place. But the tube that is pale green casts a moonlight effect around it that strikes all brightness dim and cold. Not only do we dislike, but we distrust, a pale tube in the Auricula. One thus weak is never otherwise strong. Watery colours are associated with thin textures, and thus a flower so constituted cannot live out half its days. Like a noble ship with all her canvas set, but a rotten timber at her keel, the beautiful flower goes down all standing. Florists are called punctilious and severe. So they are, but it is with reason that they are particular to a point and exacting to a shade. The Primulas being dimorphous in the relative positions of their stamens and pistil, it has been thought a fanciful and narrow choice that we should adhere to that form only wherein the anthers are set round the mouth of the golden tube and the pistil at the bottom, rejecting the longistyla or pin-eyed arrangement. With what comparison shall I illustrate the reason of our choice? I will take for an example the difference between the eye of sculpture and of life. You know the vacant stare of the one, the vivacity and soul that speak and sparkle in the other. The stony, lifeless eye in an Auricula is the pin-eyed tube, with the set, expressionless pistil its one hard set feature. But where the delicately gold-dusted anthers are set round the eye of the flower,

and the obtrusive stigma is all but sessile on its seed vessel below, we have the fulness, softness, and play of what is happily termed the "mossy eye." It is the counterpart in the flower of the living eye that is so much in the character of a face. But I pass on to the next feature on the coloured disc, and that is

The White Circle we Term the Paste.—This is a dry, snowy meal, and it must be round and broad, and bright and dense. Where these properties are wanting, the flower has, according as the faultiness may be, a sleepy, unwashed, ill-tempered, mean, cramped, crabbed, miserly look. Thus, a lively paste and a golden tube, each sharply cut and circular, are supreme points in a good Auricula. Now we come to a zone or circle further outwards on the corolla. What contrast to snowy meal lovelier and more rare could a flower give us than a sudden change to the softest velvet? Such is the texture of the ring colour known as the ground or body. Black has been the most usual, largely because black was the favourite colour with so many of the old growers. There have been strange local antipathies to anything but black—a prejudice which we will hope to see overcome by the winning argument of equally true and beautiful edged flowers with blue and crimson grounds. It is true that the best of the old flowers are those with black body colours, but the reason is that the Auricula, as if unwilling to cast her pearls before the unappreciative, has made few offers of gifts that were not sought, and would not be valued at their worth. But in whatever colour this velvet zone exists, it is imperative that it be pure—unspotted, that is to say, with any of the meal that may lie on the edge beyond it or on the paste within. Colours also should remain true and fast, not fading into weaker shades before the other parts of the flower grow old. The last remaining portion of colouring on the flower is that wonderful circle of green or grey, or white that bounds the blossom, and determines by its nature the class to which a variety belongs. I will gather into one word that important point the share which the flowers of all the classes should apportion to all their zones, and that single word is *balance*. Taking the pistil as the centre, then across the half flower as a radius line, the tube, paste, body, and edge should be in the proportion of equal breadths. The tube should be bold, with highly developed anthers, and the paste quite its full breadth, and indeed in the case of the selfs rather over that, for in them the body colour really represents two zones, and therefore for good balance the paste should represent rather more than one, or the flower will look heavy. Body colours flash towards the edge, but are not to run out at the petal corners, or an angular look is the result. However, the body should not consist of only flashes, but have a solid foundation ring—the more solid the better. Where this is not so the pencilled work has a thin and scratchy appearance.

Culture.—It is amusing for a moment to peep into the potting sheds of the past old masters. It was a school of cookery for the Auricula, in which the plants themselves were often victimised. The compost heaps were not so much an honest provision shop for the flower as its confectioner's or druggist's, where it was forced either to make itself ill with sickly sweets or was overdosed with dire stimulants, till after a flash of burning wasteful life it died. One professor of long ago, writing in dialogue, conducts a horrified neophyte round his compost yard, where the young beginner is completely upset by an inspection of horrible effects from the slaughter-house, sugar refinery, and other sources of refuse. "Our compost," says the master, over a vile compound, "is now in fine killing order; it would poison an Oak tree!" No; cut for some plants a few sods from a pasture which the Buttercups will tell you is sound and rich. Ramble in the woods, and instead of a cornucopia of wild flowers, bring back what you can carry of mellow leaf-mould. Ask the gardener for a little slice of the hotbeds than grew last year's Melons and Cucumbers. Make about equal parts of all you have with, say, charcoal, to keep it open, and you have all the Auriculas will care to ask for. As for the rest, keep their feet warm—i.e., their roots well drained—their clothes dry in winter—i.e., the leaves from wet. Remember that while the plant itself is hardy beyond limit, yet its refined blossoms are inexpressibly tender; that it belongs to the pretty family that loves a partial shade. Think how the bare trees and hedges let in all the winter sun upon the sleeping Primroses; how the young leaves on the boughs temper the sunshine over them in spring, and the full leafage hides them from it all the summer. And if you wish to grow seedlings—which you should—be as much like Nature to them as you can. Sow them when she does, as soon as ripe; cover them as she does, which will be not at all except by something that may represent the agencies of shade and moisture, under which the young seeds grow—lay a piece of glass over their cradle pot, and when they bloom they will be a great reward.

Here I draw to a close my story of a florist flower. I have wished to show what a store of interest it has for the true florist,

He may be a toiling man pent up in a dirty ugly town, but here is a flower that will smile to him in that captivity, and look a contentment that imparts itself—thriving as though the smoke-drifts were but natural clouds, and the dry hard shadows fell from waving boughs. He has his few plants, and he will see more of Nature's features and variety in a frame of Auriculas than another who has no heart and so no eyes for such things will notice in a whole landscape. In that innocent taste there is a pleasure very deep and lasting, and how much does the companionship of a friend like-minded add to it! The florist would rather have the steady continual sympathy of a brother florist the year round than beat a dozen strange competitors at a show. He must needs feel proud of his plants on their exhibition day, but that short excitement is only a small part of his whole pleasure and reward. Mere money profit is no motive in his attachment to his rural tastes and floral favourites. At the exhibition tables a good loser and a modest winner, he is not the sordid mercenary man of whom there might be said, as it sparkles in the humour of Thomas Hood, that for him "The great god Pan is dead, and Pot reigns in his stead." It is remarkable how those who have loved this flower have loved it to the last, and I could tell you of George Lightbody, who in a long illness would have a favourite Auricula at the bedside and plants brought up that he might see what needed to be done; of Robert Trail, who past his eighty years came from Edinburgh to see the flowers of his raising in our hands at the northern show; of Richard Headly keeping to a few Auriculas among the last of all his flowers; of old Robin Lancashire coming from his famed florist county to my own of the White Rose to see the Auriculas, and the eye bright with an "unfamiliar brine" at the sight of Lancashire's Hero in his great glory. It is no small thing to say of a favourite flower that it has been the first cause of many true companionships and fast friendships that will endure till all human interests here are at an end for us.

TREES, SHRUBS, AND WOODLANDS.

BARK AND TIMBER TRADE.

THE bark season has been a late and short one in this neighbourhood. Stripping was commenced at Longleat on the 29th April, and finished on the 22nd May, being fully a fortnight later in beginning than usual. During ordinary mild seasons we begin stripping about the 17th of April. The bark trade is exceedingly dull. Tanners in this locality refuse to buy except at their own price, which is £1 per ton delivered in the tanyard. We only got £3 10s. per ton of 21 cwt., put on to waggons in the wood. As a proof to show what a drop in price bark has sustained, I may mention that we sold the season's bark in 1877 for £6, under exactly the same conditions as now. The best price for this season's bark that has come to my knowledge was realised at the New Forest annual sale, where it averaged £4 5s. 1d. per ton in the wood. The timber trade is also depressed, there being only a limited demand for all descriptions of timber. Copse Ash of good quality still commands a good price, as really first-class Ash is becoming very scarce in this country. Oak of moderate quality and of small dimensions sells at a low figure, but first quality Oak in long lengths, and upwards of 12 in. quarter girth, is saleable at fair prices. Beech, Fir, and other common or low-priced kinds are worth about 3d. per foot less than the prices realised some four or five years ago. Beech is selling at from 7d. to 8d. per foot; Scotch Spruce and Silver Fir, 7d.; Larch, 10d. to 1s. The demand even at these low prices is only limited to supplying local industries, which are distressed in common with all other trades. Pitwood business is very quiet; Oak saplings and Larch poles are in greatest demand. Underwood is a miserable trade, not realising more than half the price it did a few years back. The bulk of underwood formerly was made up into faggots and sheep hurdles, and a ready sale at paying prices was easily obtained, but now dealers find a difficulty in selling faggots at very low prices; this bad state of the faggot trade is occasioned chiefly through the majority of bakers converting their ovens into coal burning instead of wood burning. A few years ago in the small town of Warminster about 10,000 faggots were burnt annually by bakers, while at the present time I do not think so many hundreds are burnt during the year. The hurdle business, too, has undergone a change; demands and prices are small in comparison with what they were some few years ago, when farming was a more profitable investment than it has been of late years.

GEORGE BERRY.

Longleat.

Abies Engelmanniglauca.—Foremost among all Coniferae, on account of its beautiful glaucous hue, is this variety of Abies Engelmanni, and when covered with its young growth it is still more striking. When planted along with other and more sombre

hued kinds, the silvery grey foliage of this, so different from that of its associates, renders it conspicuous. It is of a dense pyramidal habit, and has been in no way injured by the last two winters—at all events around London.—ALPHA.

THE FORSYTHIAS.

In the early spring, when the number of flowering shrubs is but



Forsythia Fortunei.

limited, the Forsythias are among the most conspicuous, both the shrubby-growing *F. viridissima* and the climbing *F. Fortunei* being then usually one mass of golden blossoms. The first of these—

F. viridissima—is one of Fortune's many introductions from China. It forms a free-growing deciduous shrub, the flowers of which are produced before the foliage, and are of a golden yellow, the leaves being bright green and Willow-like. This *Forsythia* succeeds well almost anywhere, and though unusually severe frosts such as we experienced last winter in some places injure the flowers, yet in many others they sustain no harm. The plant itself seems proof against any amount of cold. This shrub is well adapted for forcing, as flowering as it does naturally very early, it requires but little heat to bring it on, and the masses of gaily-coloured blossoms have a pleasing effect associated with those of other subjects.

The next species, *F. Fortunei*, is, as has been stated, a climbing plant, and a worthy rival or companion to *Jasminum nudiflorum*, although the latter is the first to open, as it flowers in the greatest profusion, while the leaves of this are both simple and compound. For covering walls this kind is very suitable. It should be fastened to the wall until it is densely covered, and then the long graceful branches should be allowed to hang out naturally to their full extent; thus treated, whether in flower or not, it is a really beautiful object. This species was introduced from Japan by Fortune in 1861, and, like its congener, is perfectly hardy. Under the name of *F. suspensa* we have one that differs but little if any from *F. Fortunei*; in fact, I have been unable to detect the difference; for instance, *suspensa* is said to bear simple leaves and *Fortunei* compound ones, but the two kinds of foliage may often be found on the same branch.

Forsythias succeed well grafted on the Privet, and when standard high, *suspensa* then forms a weeping plant. There is, however, no occasion to graft for the purposes of propagation, as both species strike very freely from cuttings. ALPHA.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS

Laburnum Sports.—The enclosed were taken from a beautiful flowering tree that I am hardly justified in calling a *Laburnum*, since, besides the ordinary yellow floral festoons, it was studded here and there all over with the purple *Cytisus*, and a peculiar hybrid between the two called *C. Adami*. The history of this curious floral sport seems to be that the purple *Cytisus* was grafted on the *Laburnum* some years ago, and that in the sap circulation, hybridisation by grafting was produced. Both the yellow *Laburnum* and the purple *Cytisus* produce seed, but the mule or hybrid produces none, nor does it come true from cuttings, so that there seems, as in many other sports, no means of reproduction. I understand that Mr. Darwin has discussed this matter at length in one of his books, but I have not yet had the pleasure of seeing it. The tree is a great curiosity, and imposing even at a distance.—W. J. M., *Clonmel*.

Magnolia auriculata.—The powerful perfume of this species when in blossom at once attracts attention, even though the flowers themselves may be unnoticed, a circumstance unlikely to happen, as they are borne on the extremities of the young shoots. This species forms a bold and imposing tree, remarkable on account of the size of the leaves, which in young and vigorous specimens are as much as 10 in. or 12 in., and sometimes even more in length, and 5 in. or 6 in. in breadth, while the flowers are of a more loose, open character than those of *M. conspicua* and pure white. Another species now in flower is *M. cordata*, which is much smaller in growth, leaf, and flower, and chiefly noticeable from the latter being yellow and sometimes faintly streaked with red, in these respects somewhat resembling the bloom of a Tulip.—ALPHA.

Garrya elliptica and other Tender Shrubs.—Visiting Merlin yesterday, I was shown the only surviving outdoor specimen of *Garrya* in this locality with which I am acquainted, and I have the pleasure occasionally of seeing most of the gardens around. It seems to belong to a class of half hardy handsome shrubs that, except under exceptional circumstances, will not survive a zero temperature or near it, such as we had last year. Except the surrounding *Coniferae* and dry high situation, it received no protection. *Benthamia fragifera* and *Aristolochia* were killed in Minella Gardens adjoining, as well as every specimen of *Veronica*, and nearly every one of *Myrtle*. I might almost include *Laurus nobilis*, for though it seems to linger in some places, has proved generally more tender than *Arbutus Unedo*, or even *Fuchsias*, for though many are killed hopelessly, some are starting from the base. I know of no *Eucalyptus* alive in this locality.—W. J. M., *Clonmel*.

Late-leaving Trees.—It is amusing to me to read in several recent Nos. of *THE GARDEN* of the progress of hardy plants in Eng-

land, that they are in leaf and flower when the same species growing here had not burst a bud. It is now the 16th of May, and the Kentucky Coffee tree, common Persimmon, Fringe tree, Catalpa, and some others are leafless still. Pear trees are in full flower; Cherries, past; Apples, opening; Chinese Wistarias, leafless, but beginning to bloom; Forsythia suspensa, a little past its best; viridissima, at its best; also the Japan Quince, Spiræa Thunbergi, and Missouri Currant (yellow); the Lilacs will be in bloom in a few days, and the Horse Chestnuts in a week or two. Growth is slow in starting here, but when it does begin it goes ahead in earnest.—F.

Shepherdia argentea.—Conspicuous as some of the Elæagnuses are on account of their silvery appearance, they are surpassed in that respect by a member of an allied genus, viz., the old, but seldom seen *Shepherdia argentea*, which possesses such an intense silvery hue, as to be very striking, especially where associated with darker foliaged plants. This shrub delights in moist, cool situations, and in such places almost attains the dimensions of a small tree. It, nevertheless, succeeds in soil of average dryness, although in such its growth is slower and it is more shrub-like in habit.—ALPHA.

THE ROSE GARDEN.

Fine Marechal Niel Rose Tree.—Mr. H. K. Williamson, says the *Whitby Gazette*, has reason to be proud of his famous *Marechal Niel*, which, if possible, is more prolific of blooms this year than has ever been the case before. Last year this tree, which is about 18 years old, and is probably the largest of its kind in England, yielded 1880 blooms, but this year the yield will exceed 2000. Considerably more than 600 single Roses have been cut, and there are now 200 or 300 ready for plucking, and these will be followed by some 300 or 400 more. The tree is budded on the "Victoria" stock, the length of which is $4\frac{1}{2}$ ft., and is planted at the back of the flue, and the roots have passed under it to the vine border outside. The circumference of the stem is 4 in.; the longest branch from the stock, 50 ft.; the longest growth made last year, upwards of 20 ft.; the total number of branches trained from the stock, about 20. The tree is planted against the back wall of a vinery 50 feet long, and is trained the whole length of the adjoining house, which is 30 ft. long, thus making a total length of 80 ft. The tree always attracts much attention at this period of the year.

York and Lancaster Rose.—May I ask what "R." means under this name? Is it *Rosa Mundi*, which is a beautiful variety of gallica (1799 of Curtis's Botanical Register), about 18 in. high? If so, that Rose is not lost; and if he will write to me in the autumn, I shall be pleased to send him a plant of it. Calling it York and Lancaster is an error; the Rose of that name is *Rosa damascena* in two colours, a bush 4 ft. to 8 ft. high; that Rose is scarce, but I have long had it.—H. T. ELLACOMBE, *Clyst St. George*.

—There is a quantity of this old-fashioned variety growing in the shrubberies of the vicarage garden here, and I am told it is plentiful in the cottage gardens near the Penrhyn slate quarries. Its associations rather than its merits have perhaps kept it in some gardens, for there are hundreds of Roses superior to it in every way. As a nurseryman's plant it has little value, so I quite understand the difficulty of procuring it from that quarter. About Liverpool there used to be abundance of this Rose brought to market to make up our fathers' and grandfathers' "posies;" but so great has been the improvements in certain kinds of flowers, and notably Roses, that our old friend of York and Lancaster has not had much chance.—EDWIN JACKSON, *Llandegai, Bangor*.

Mildew on Roses.—The *Journal des Roses* gives two recipe for destroying mildew. The first is from M. Verdier. It recommends to boil for ten minutes 500 grammes (about $17\frac{1}{2}$ oz.) of flowers of sulphur and an equal quantity of lime, in 6 litres (about $5\frac{1}{4}$ quarts) of water, often shaking the mixture. This solution is allowed to settle, and afterwards put into well-corked bottles. When required for use, 1 litre (about $1\frac{3}{4}$ pint) of this composition is put into 100 litres (about $21\frac{1}{2}$ gallons) of water, and the Rose plants are syringed with the mixture. The second is that of the Comte de Buisson; 2 or 3 grammes (about $1\frac{1}{2}$ or $1\frac{1}{8}$ drachm) of sea salt is dissolved in 10 litres (about $2\frac{3}{4}$ gallons) of water, and the foliage of the Rose plants on both the upper and under sides is syringed with this solution.

Fortune's China Indoors.—The form and substance of this Rose are not much, but its colour is most peculiar, more of a buff than a yellow, and then no two flowers hardly ever come alike, most of them being in certain portions more or less flaked with purple or carmine. The size also varies very considerably. Though this Rose is generally described as very vigorous, I have not hitherto found it

to be so. It is, however, very floriferous, which is more to the purpose, and is well worth growing under glass for its distinct character and unique colour.—D. T. FISH.

THE INDOOR GARDEN.

INDIAN AZALEAS OUT-OF-DOORS.

WE may take it for granted that the greater number of young gardeners having never seen the Azalea grown, except in a pot, have, without making for themselves any trial, imagined that there is no other way in which to attain perfection in leaf and flower but in a pot. After all, however, the pot cultivation of any plant is but a makeshift, and most assuredly not the one by which we get the best results. Through exhaustion, due to over abundant flowering, or from growing in a description of peat soil deficient in the necessary ingredients, or from want of room for root extension or from some other cause, the Azalea is often found with small unhealthy looking foliage and deteriorated blooms; repotting has not sufficient effect, and manures can only be used with the utmost caution. Now, the one thing that will give redundant health to such thankless subjects is transplanting in a properly prepared bed of soil, in a thoroughly sunny aspect, and if the roots are not materially damaged they will recuperate themselves in one season. The mixture of soils should be that in which they are usually grown, but with a trifle more of fibry loam, and the whole of the materials employed should be in a coarse, free condition previous to transplanting. I have found that when the earth was thrown together, as a flat bed of from $1\frac{1}{2}$ ft. to 2 ft. in thickness, on the natural surface of the ground, the results were superior to those attained in a bed made in a trench below the ground level. The earth never became saturated with too much water; was warmer; and as to the matter of moisture, quite under control. Where peat and other materials are scarce or dear, walls of turf or an embankment of ordinary earth may be thrown up all round the bed; it keeps the mass together and counteracts the drying effects of sun and wind.

The unhealthy plants (or indeed any others, for it is beneficial to all) may be put out in the last week in May, or earlier, in fine seasons, Azaleas not being at all tender, if not brought direct from a forcing pit. As a bed, except for a large collection, would be best made about 6 ft. wide inside its walls, there would be room for either two or four rows of plants according to size. No crowding must be allowed; indeed, there should be space left wide enough for a man to get in and about them any where; quite young plants are all the better for being grown in this way, and may be planted out at a foot apart. When transplanting, all old exhausted soil should be carefully picked away down to the perfectly healthy rootlets, seeing that the ball is in a moist state before planting out. It will be advisable to sink the upper surface of the ball at least 3 in. or more in the case of very large specimens, so that when small shallow basins have been made round the stem of each, the ball shall still have its upper part a little under the new soil.

The amount of water which they will require will of course depend on the quantity of rain they may get; at any rate the labour saved in this matter will be considerable, not to speak of the anxiety from which the grower will find himself freed. He will not have to dread that his specimen plants have been too little, or too copiously watered; for if the balls are thoroughly moistened at the outset, the facility with which they can be retained in a uniform degree of saturation is something to rejoice over. The syringe or garden engine will be needed morning and evening in dry sunny weather, and will greatly tend to clear the plants of thrips.

The repotting may take place early in September, lifting the plants with as much of the soil as will conveniently hang to them, and replacing them in clean, moderately drained pots. Should worms show themselves, a weak watering with soot will drive them out. The newly potted plants must be kept moderately close in a cool pit till rooting has taken place, after which they may be gradually accustomed to a free circulation of air. The bed of soil can then be thrown into a pyramidal form, to await the return of the planting season, and which, with slight additions of sand and soil, will last for many years. Camellias, Heaths, Boronias, Sikkim and Himalayan Rhododendrons may all be cultivated in this way either when in a young state, to produce handsome specimens at a quicker rate, or when old and debilitated to endow them with new vigour.

SYLVESTRIS.

Pelargonium Madame Thibaut.—Of late years a class of Pelargoniums to which the name of decorative is applied has been brought prominently forward, for although their flowers do not possess the even regular outline of the show varieties, yet they are produced so freely, and the habit of the plants is so good, that for

general purposes they are invaluable. Such a one is Madame Thibaut, a Continental variety, in which the growth is very short and sturdy though free, and the flowers of a pleasing shade of pink. The upper petals are darkly blotched and there is a beautiful violet shade in the centre of the flower; altogether it is a first class variety and when more common than it at present is it will doubtless be largely grown.—H. P.

PLANTING OUT GARDENIAS.

I WAS glad to see "W." call attention to this subject in *THE GARDEN* (p. 529). The system as applied to Gardenias has virtually given us a new plant for decorative purposes. It has also spread so rapidly that it will soon be universal wherever Cape Jasmines are in demand. The quantity of flowers is so much increased, as well as their size enhanced, while "W.'s" comparison of planted-out Gardenias to Laurels can hardly be called an exaggeration. The rage at present is all for large Gardenias, hence the common florida runs the risk of going out of cultivation. Well grown, however, on the planted out system, it is large enough for button-holes, while intermedia, a cross with florida and Fortunei, is really too large. It is, however, magnificent for hair wreaths and bouquets, and flowers as freely as florida and as large as Fortunei. The best plan is to grow Gardenias in low pits or frames, where they can be kept close, moist, and partially shaded. This produces leaves large and glossy, and an enormous quantity of flowers in succession, provided the plants are properly treated, as described in *THE GARDEN* about a year ago. The only objection to planting out Gardenias consists in making them fixtures, whereas one of the chief charms of plant houses should consist in fresh changes of disposition, so as to make the house as well as furniture seem new. But even this may be done with planted-out Gardenias, inasmuch as they form so many roots into the soil, that soil and roots may be lifted into fresh quarters with impunity. To all who have not tried the planting out of their Gardenias the advice may safely be given, Do it at once. Even if large plants are wanted in pots plant them out first, and then pot them up with their network of roots intact, and the plants will thrive almost as well in pots for several years afterwards as if it took them some time to discover they were not still in the open border. D. T. FISH.

Freessias.—Permit me to say a word or two in reply to the remarks of "W. E. G." and Mr. Horsman on the specific differences of these plants. In order to clear up the matter, I called on Mr. Baker at the Kew Herbarium, who most obligingly showed me the specimens of Freessias in the Kew collection, and gave me his opinion thereon. In this collection there are at least a dozen forms all more or less different from each other, either in size of plant, length of flower-tube, or size of the whole flower, and in colours varying from white to dark orange, all of which are under the name *F. refracta*; and Mr. Baker remarked that either he would have to give everyone of these a specific name, which would be ridiculous, or call them all varieties of the one species, as he has already done. With regard to *F. Leichtlini*, Mr. Baker remarked that although he had previously accepted it as a species, after a careful comparison of it with the forms of *F. refracta*, he did not see that it could well be kept up as specifically distinct from that species. This justified the doubts I expressed on this point in a few remarks which accompanied the figure in *THE GARDEN* (p. 446), and we must now consider *F. Leichtlini* nothing more than a variety of the very variable *F. refracta*. I have heard of the name *F. aurea* being applied to a form of this species at Messrs. Henderson's, Maida Vale, but Mr. O'Brien has, I think, admitted that his plant does not differ from *F. refracta*. To cultivators whose knowledge of any particular species may be limited to only one or two forms, all of which may have been the production of a single introduced individual, this "lumping" system may be viewed with mistrust, but it must be borne in mind that climatic and other conditions often have a powerful modifying influence over plant forms, and that a plant which in one situation may be tall, large-flowered, and brightly-coloured, would in another change these characters for perhaps a shorter and fewer-flowered condition. Take as an instance of variation the more popular Orchid *Odontoglossum Alexandræ*, whose beautiful forms and colours seem almost endless. Indeed, we need not go so far away for an instance of variation in the form of any particular species, for one may observe it in the Shepherd's-purse, Daisy, or Buttercup growing along the roadsides and in the fields. I must thank "W. E. G." for so kindly offering to show me his picture of the different kinds of Freesia.—Z. B.

Plants without Soil.—You will most likely have heard of the invention of growing plants in pots without earth. Of course,

at first, people are disposed to consider it as a story. But the inventor is a friend of mine, a very straightforward and independent man. I do not know his secret; I only know that instead of earth he uses Moss prepared in a certain way. I must suppose that you will think proper to call the attention of the readers of *THE GARDEN* to it.—JEAN SISLEY, *Lyons*. [The inventor should explain his process. We are doubtful of gentlemen who in our own day carry on the old trade of mystery-mongers. We understand that the process consists in steeping the roots of fully-grown plants in some preparation and enveloping them in Moss.]

GARDEN DESIGN.

BUILDINGS IN KEW GARDENS.

WE observe with some concern the erection of a small gallery at Kew for the reception of botanical drawings. It seems to us a doubtful good these repeated additions to the buildings in our national garden. The true object of that garden should be to show us the vegetation of countries similar to our own, or at all events such vegetation, from no matter what country, as is suited for our gardens, groves, or woods. At least, that is the main object; an incidental one is that of showing us the vegetation of tropical countries. At one time it was not so much so, because very few had opportunities of seeing what vegetation meant in tropical countries, and the time involved for seeing them, where opportunities existed, was more than could be spared, except by few. But now a three weeks' voyage will bring one into the heart of all the loveliest tropical vegetation, while communications and means of knowing all about it are being opened up every day. It has always seemed to us that the error made in our great garden was the needless multiplication of buildings devoted to tender vegetation, and that this object has always had a wholly incommensurate share of the expenses and allowances, quite unusual in their liberality, made by the State to the garden. The original cost of one of these great houses, and the expense of its maintenance, would have sufficed to plant nobly the finest national tree garden in the world. We do not mean a botanic garden merely, in which things are well labelled and classified, but in which every tree and shrub and plant hardy in gardens could be grouped and massed, and grown so as to show their ultimate value or beauty in every desirable way to the planter, for ornament or utility. Questions of nomenclature and of botany should not occupy the first place, but might at the same time be efficiently done.

As to the question of botanical drawing, everyone who has paid the least attention to the subject know that of all the arts there are none more backward. The botanical artist so called—even those who are vaunted as the best—has, of all creatures who handle the pencil, the stiffest and poorest knowledge of real drawing. Our botanical periodicals prove this. The consciousness of their bare exactitude as regards parts, organs, &c., which is so easily and quickly acquired by any attentive person, leads to the deliberate neglect of the finer variation of form in the flower, and of light and shade itself, and even the natural position and pose of the flower or plant. We are now speaking of mere drawings of single flowers, the simplest phase of the whole matter. Studies of vegetation as it is in Nature, whether an English hedge-row in flower or a patch of alpine turf, or a glimpse of the graceful tree life of the Tropics—none of these we have ever seen worthily done. There is a whole world of exquisite but transient beauty which our botanical artists, when their eyes are opened to it, should seize for us, and which are now wholly neglected. The conventional but impossible spray of early blossom, bird's nest, &c., all nicely grouped together, of the exhibition is very far from what is wanted. But even if the art were as advanced as one could desire, and flower painting and the painting of the aspects of vegetation were in any way the fitting reflex of what one may see in Nature, we should doubt then if the national garden were a proper place for a series of studies of the kind. The purpose of a great garden should be the development of the largest amount of beautiful life which could be effectually shown in the place. The chief means of the garden should go to that end. We have already a plethora of museums in which such things would find a more fitting place. It is when one cannot see the beauties of Nature, and of plant and tree life, that studies and paintings of those things are most welcome. Then, again, the

lighting and the means of showing such pictures if they ever come to us, are much more efficient in our national galleries, museums, &c., than they can be well made in a garden, without great expense. A small building for such purpose is soon filled, found to be insufficient, and then the question of enlargement arises, the expenses for all such objects taking away in the meantime from the resources for the true aims of the garden.

But it is not only the aim of giving great and costly attention to things which have little to do with gardening or the embellishment of our own country that is wrong; equally so is the cutting up of a fine surface of ground by scattered buildings, and their necessary walks, approaches, &c. If anyone tries to see what is to be seen at Kew this must occur to him at every step; the confusion, cutting up of the surface of the ground by a mass of scattered hothouses museums, &c., being already very bad.

course of formation, I planted a large number of young fruit trees, and the hares being troublesome, I had the lower 3 ft. of the stems painted with tar from our own gasworks. It was rubbed on with a brush as thin as possible, or, as the saying is, rubbed on and rubbed off again, so that when finished they appeared rather brown than black. It, however, prevented the hares from attacking them, and no harm came to the trees in consequence of the application that I could perceive, and I should have no hesitation in again applying the same remedy if needed. The trees of which Mr. Fish speaks as having been killed by tar must have been thickly plastered with it.—R. LLOYD, *Brookwood*.

GYMNOGRAMMA SCHIZOPHYLLA.

This charming Stove Fern, a native of the West Indies, was sent to



Gymnogramma schizophylla.

Such structures, so far as necessary, ought to be grouped together compactly. Every building added to the garden without absolute need, in relation to the true aims of such an establishment, will prove a source of weakness, not strength. We have known the garden for many years now, and frequently fail to find our way to some of its more interesting spots, owing to the unwise way in which the best parts of the grounds have been cut up by houses and other structures. If the taste for building is not controlled in good time, there will be little real garden left at Kew.—*Field*.

Tar Dressings.—That coal tar is not so injurious to the stems of trees as "Peregrine" and Mr. Fish seem to think my own experience goes to prove. Some years ago, when the gardens here were in

Messrs. Veitch & Sons, of Chelsea, by Mr. Nock, of Gordon Town, Jamaica. Its chief distinguishing characters are—Fronds crowded, the stipes and rachides rather slender, reddish-brown, 18 in. to 24 in. long, gracefully arching on all sides; the leafy portion of the frond is about 2 in. broad, very finely cut, the ultimate pinnules being deltoid and minute. A remarkable peculiarity in this Gymnogram is seen in the furcation of the rachis at about two-thirds of its length, and where it is prolific, every frond producing a young plant at the point of furcation. The very elegant contour of this Fern, its moderate size and graceful habit, its delicately cut pinnules and pleasing colour, render it one of the most attractive of tender kinds. It is also one of the best of Ferns for cultivation in suspended baskets. It was awarded a certificate of merit by the Royal Botanic Society

on March 31, and a first-class certificate by the Royal Horticultural Society on April 12 of the present year.

TOUITING AT HORTICULTURAL SHOWS.

To the Editor of THE GARDEN.

SIR,—Permit me to call attention to an unpleasant aspect of flower shows that I noticed last Friday at South Kensington. At several of the stands young men armed with books were attempting to effect sales in a way that did not make the approach to the benches so agreeable as it used to be in days gone by. Flower shows, like other things, are on their trial; there is not the great success in their case that there used to be, and no doubt there are reasons for the falling off; all the greater care therefore should be taken by their managers to make them useful, pleasurable, and instructive to the public. Could a more offensive practice than that of sales, booking orders, and often loud conversation thereon be carried on where all should be quiet, and the show so arranged that each could see and study the subjects shown without annoyance? I write in the interest of the gardens and show as well as in that of the exhibitors themselves, for while one or two more or less pushing individuals might effect sales in this way, the result will be to drive many people away altogether. I hope that the practice which is at present carried out mostly in the neighbourhood of the hardy plants will be nipped in the bud. The sales to which I refer took place early in the afternoon. H. W.

PLANTS AT NEWRY.

I SEND you flowers of a charming little *Linaria* (*L. multipunctata*), which, although only an annual, is well worth growing, and in a mass is quite showy; its yellow flowers, with row of small black dots on each side and scattered dots on the throat, are curious when closely looked at; also flowers of another *Linaria*, sent here as *L. aurea reticulata*. It is not that species, but with its tall spikes of many-coloured flowers, varying from rose to deep purple, it is very charming in a mass. *Allium acuminatum*, about 6 in. high, has globular heads of purplish, rose-coloured flowers, and *A. album*, about 1 ft. high, charming umbels of the purest white; these go well together. *Ajuga Brockbankii* has spikes of Gentian blue, the best of all the bugles. *Sieversia elata*, a plant closely allied to *Geum*, is now the most charming yellow plant in flower here, in the shape of a good tuft about 1½ ft. over and 10 in. high. The colour is of a peculiar soft shade, not matched by anything else we have. How charming is the foliage and also the buds of *Rosa rugosa*, every day opening its large crimson-petalled blossoms, only as rapidly to fall away. *R. acicularis* is about over; it is a small *rugosa*, and just precedes it in blooming. How striking the glorious heads of the oriental Poppy! I find this to succeed well by the side of water, even when raised but a few inches above it. The stately *Iris odoratissima*, with its large pale blue flowers raised on 3-ft. scapes, is very showy, and its flowers smell like Tulips. Then there is *Iris sibirica*, whose individual flowers—dull white with brown lines—are not showy, but a good specimen 4 ft. high, with its mass of grass-like leaves drooping to the ground, and hundreds of flowers open at once, is distinct and handsome.

Siphocampylus longipedunculatus is a distinct *Lobeliad*, and sometimes lives for two or three seasons in the open border; though not strictly hardy, we always keep a few plants over in a cool house and plant out early in spring; it is in flower when planted out and in flower when the frost comes in autumn, come when it may. *Aquilegia coerulea* in a mass, fifty or so together, has been and is lovely. *Pentstemon glaber* has been also in a mass very beautiful, its half creeping habit and steel-blue buds rendering it quite distinct from anything else just now. It is also the first of the family to bloom. *Dianthus alpinus* is now most enchanting; cushions of small green leaves and large rosy-crimson flowers on inch high footstalks—a giant on the legs of a dwarf. *Myosotis Imperatrice Elizabeth*, the deepest blue, and the latest of the Forget-me-nots to bloom, growing with great vigour and flowering for a long time, must not be at all despised. A pretty Lupine, much dwarfer than *polyphyllus*, and whose young growths are purple, is now fine. It was sent here as the blue Lupine from California. *Geum coccineum* fl.-pl. is effective. The Lupine just noted and the last-named plant, growing amongst each other, make a striking group, but the best association I have lately seen was a good mass of *Cystopteris fragilis* and *Campanula Allioni*; its large blue cups, 2 in. high, formed quite a carpet, out of which the indescribably green fronds of the fairy-like Fern sprang.

The season, so far, has been most favourable for the growth of all hardy plants; we have had no spring frost, no check of any kind since the cold weather finally left us. The early plants, such as *Hepaticas*, suffered much, but they came before the fine weather;

other things began their growth under favourable conditions, and have maintained an unblemished vigour rarely equalled—at least, here, where late spring and early autumn frosts are the rule; even Tree *Pæonies*, which during ten years I have not seen perfect, are this year absolutely so. The Golden Oak, how grand it is as a tree on the one hand, and the golden *Hypericum* (same colour) as a shrub on the other—both effective colour subjects. *Deutzia candidissima* fl.-pl., just opening its huge profusion of double snowy blossoms, deserves a word. T. SMITH.

[A very interesting series of plants accompanied our correspondent's notes.—ED.]

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 3, 4, 6, AND 7.

THE annual great summer show, held at South Kensington, was of the usual extensive character, and was even larger than corresponding shows of late years, on account of the special implement exhibition. As regards quality, the plants were scarcely up to the average of recent years, and the absence of several habitual exhibitors was conspicuous, a circumstance probably attributable to the length of time (five days) during which the exhibition remained open. There certainly would have been a more extensive display of Orchids, and of higher quality than those shown, had not the show been of such long duration. As regards miscellaneous groups, the only really fine one was that exhibited by the General Horticultural Company. This occupied a prominent position at the north end of the tent, and the arrangement was of the usual effective character, the whole of the subjects being made to blend and harmonise well with each other. There was no lack of colour in the large tent, too much, in fact, and the effect would have been finer had there been more greenery. The competitive classes were on the whole well represented, though, as we have just remarked, not so fully as usual.

Orchids.—There was a fine display of these arranged on one side of the long tent, though, taking the collections as a whole, they were inferior in quality compared with those of corresponding exhibitions in former years. This circumstance no doubt is attributable to the long time during which the exhibition continued, for few would care to risk valuable plants five days under canvas even in June. A conspicuous feature in some of the collections shown were the numerous masses of small plants placed together in one pot so as to pass for a single specimen. This practice is evidently gaining ground, and should be discouraged by rigid stipulations in the schedule, for such examples are no criterion of good culture, and in the majority of instances it is only a matter of who possesses the largest number of plants. In the open class for fifteen plants there were but two competitors, Mr. James and Mr. Douglas. The former was placed first. The collection was not remarkable for well-grown plants, as no fewer than eleven of the specimens consisted of numerous small plants, though, of course, they were effective. The best examples were *Odontoglossum vexillarium*, *O. Alexandræ*, *Masdevallia Veitchii*, *Oncidium concolor*, *O. ampliatum majus*, *Cypripedium barbatum giganteum*, *Aerides Fieldingi*, *Epidendrum vitellinum majus*, *Cattleya Mossiæ*. The other collection, on the contrary, consisted of well-grown single plants with but one or two exceptions. There was a grand plant of *Cattleya Warneri* with a dozen flowers; *Dendrobium nobile* and *D. Dalhousianum*, both remarkably fine, the latter with eleven spikes; *Calanthe veratrifolia*, *Vanda suavis*, *Anguloa Clowesi*, *Masdevallia Harryana*, *Dendrobium Wardianum*, *D. thyrsoiflorum*, *Odontoglossum vexillarium*, *O. Roezli* and *album*, both remarkably well flowered, though the plants were not particularly large.

The amateurs' class for ten plants was represented by three collections, none of which were very remarkable; in the first group from Mr. Child the best plants were *Vanda suavis*, with ten spikes, *Aerides Fieldingi* and *Lobbi*, the former being very fine, having several long branched spikes, *Odontoglossum citrosum*, a good plant, and *Cypripedium barbatum superbum*. *Oncidium ampliatum majus* and *Cypripedium niveum* were the best of the others. The second best from Mr. Salter contained amongst others a good plant of *Cattleya labiata*, with eight flowers, the rare *C. Alexandræ*, a fine *Cattleya Mossiæ*, *Oncidium crispum grandiflorum*, and a fair plant of the white *Vanda Denisoni*. Mr. Douglas, in the third group, had again a good example of *Dendrobium Dalhousianum* and *Odontoglossum Roezli*, *Masdevallia Harryana*, *Dendrobium Wardianum*, and others. Three collections of ten plants each were shown in the nurserymen's class. The best was from the Victoria Nursery, Holloway, and consisted of fine masses of *Cypripedium barbatum superbum*, *Lælia purpurata*, a fine variety with about a score of blossoms; *Epidendrum vitellinum majus*, *Odontoglossum crispum*, *Cattleya Mossiæ*, *Cypri-*

pedium superbiens, a very fine *Oncidium macranthum*, *Dendrobium suavisimum*, and *Dendrobium Jamesianum*. The best in the second group from the Norwood Nursery were *Odontoglossum vexillarium*, *Cypripedium barbatum*, *Cattleya Mossiae*, *Odontoglossum cirrhosum*, *Dendrobium nobile*, *Oncidium crispum grandiflorum*. The other group was from the Kingston Nursery.

Stove and Greenhouse Plants.—These were quite up to their usual standard of excellence, though perhaps not quite so numerous as usual. They were all of the ordinary stamp of exhibition plants, no deviation from it in the way of new kinds being observable in any of the collections, a proof that old favourites are difficult to supplant by novelties. Four collections of twelve plants each were shown in the open class. The best plants came from Messrs. Jackson, who showed wonderfully fine examples of skilful culture, and a more uniform or fresher group is seldom seen at London shows. The finest examples were *Erica Lindleyana*, a perfect specimen as regards vigorous health and profuseness of flower, though so difficult to manage; *E. ampullacea*, also fine; *Aphelexis macrantha purpurea*, perfect in every way and remarkably fresh; *Hedaroma tulipifera* and *fuchsoides*, both superbly flowered and of high colour; *Erica Cavendishi*, *Clerodendron Balfourii*, *Pimelea mirabilis*, fine; and three *Azaleas*—*Criterion*, *Grand Crimson*, and *Model*, all first rate sorts.

The next best collection from Mr. Tudgey was also good, but some of the plants bore evidence of hard work. The best were *Erica Cavendishi*, a huge plant, rich flowered; *Erica ventricosa magnifica*, very fine *Pimelea mirabilis* and *Clerodendron Balfourii*, both good examples, a splendid mass of *Anthurium Scherzerianum* well flowered, *Azalea Distinction*, a pyramid of colour. In the two other groups the most noteworthy were *Allamanda grandiflora*, *Erica ventricosa major*, *Pimelea mirabilis*, and a few fine *Azaleas*, notably the beautiful old *A. Iveryana*. The nurserymen's class for eight plants was represented by three collections. The first, from Messrs. B. Peed & Son, contained *Erica affinis*, *Azalea Juliana*, and *Aphelexis macrantha purpurea*, very fine; also fair plants of *Statice profusa*, *Allamanda grandiflora*, *Dracophyllum gracile*, and a fine variety of *Anthurium Scherzerianum* called *magnificum*. In the other two collections were noteworthy plants of *Hedaroma fuchsoides*, *Erica tricolor speciosa*, *Azalea Magnet*, *Statice profusa*, *Erica affinis* and *tricolor speciosa*.

The amateurs did not show nearly so well as usual nor so numerous, there being only three collections, and the plants were somewhat below the average quality. Mr. Child, who was first, showed in his collection good examples of *Aphelexis macrantha purpurea*, *Erica Cavendishi*, *E. depressa*, and *E. Victoria*, *Hedaroma tulipifera*, *Statice profusa*, and *Bougainvillea glabra*. The next, from Mr. Williams' garden, *Henwick Grange*, contained, among others, *Clerodendron Balfourii*, *Pimelea decussata*, *Hedaroma tulipifera*, *Erica ventricosa major* in good condition, also a small plant of the splendid *Anthurium Wardii*, the finest variety of *Scherzerianum*. The other group was poor, the only noteworthy plant being *Boronia elatior*, a species that, when well grown, makes a telling plant in a collection. Heaths as usual were not remarkable, there being only three collections of eight plants shown, and none of the plants in these were very noteworthy.

Ferns.—These were not so numerous, or, on the whole, so fine as of recent years. Among amateurs a very fine collection took the first place. It contained remarkable examples of high-class culture, especially having regard to the difficult to manage *Gleichenias*, which formed half of the group. The only fault in the group, if fault it is, was a lack of variety, there being three Tree Ferns and three *Gleichenias*, which had a somewhat monotonous effect. The Tree Ferns were *Cyathea Burkei* and *Dregei*, both noble species, and *Dicksonia antarctica*, which, like the others, was of huge dimensions and perfect as regards vigorous growth. The *Gleichenias* were *Mendellii*, *glaucophylla*, and *rupestris glaucescens*, all most elegant kinds some 5 ft. or 6 ft. in diameter, well furnished with young, healthy, fully-developed fronds. These were shown in Mr. Warren's collection from Handcross Park. The second group was good, and contained variety. It consisted of a grand plant of the true form of *Phlebodium aureum*, *Microlepia hirta cristata*, *Adiantum farleyense*, *Davallia Mooreana*, *Dicksonia squarrosa*, all excellent plants and fine for exhibition, and a smaller plant of *Gleichenia semivestita*. These were from Garbrand Hall, Ewell. Mr. Douglas showed the other collection, which was also good. It contained fine specimens of *Adiantum concinnum latum*, *A. cuneatum*, *Davallia Mooreana*, *Dicksonia antarctica*, and *fibrosa*, all in vigorous health. The only collection of six plants in the nurserymen's class was shown by Mr. Williams, who had *Dicksonia antarctica*, *Cyathea dealbata*, *C. Burkei*, *Asplenium Nidus*, *Gleichenia circinalis* and *flabellata*, all excellent for exhibition.

Fine Foliaged Plants.—The class for eight plants from amateurs brought out four competitors only, but some of the plants

in the different collections were uncommonly fine. From Mr. Rann came the best group, representing grand plants of *Croton interruptum*, *C. Andreanum*, and *C. variegatum*, all of huge dimensions and highly coloured. Superb plants of *Areca sapida*, *Pritchardia pacifica*, *Thrinax elegans*, *Cycas circinalis*, and *Dasyllirion acrotichium*. The next best collection, from Canon Bridge's garden, Beddington, contained excellent plants of *Spathiphyllum pictum*, *Areca pubescens*, *Dieffenbachia Bausei*, remarkably fine; *Kentia Wendlandi*, *Phormium Colensoi* fol. var., *Anthurium regale*, *Croton Hendersoni*. The third group included, among others, noteworthy plants of *Pritchardia pacifica*, *Cycas revoluta*, *Croton Queen Victoria*, *Kentia australis*, *Thrinax elegans*. Messrs. Hooper and Co. were the only exhibitors of a hundred fine foliaged plants. These were arranged in the long tent, and consisted of Palms, *Dracenas*, Ferns, Cycads, Aroids, all remarkable for their vigorous growth. The arrangement of the group, moreover, was carried out in a tasteful manner.

Azaleas were numerous, and on the whole finer than usual. The varied and brilliant colours of the large groups imparted quite a gay aspect to the exhibition and relieved the more subdued tone produced by the Ferns and fine foliaged plants. Amateurs, as usual, showed the finest collections. The class for eight plants was represented by four collections, the best being shown from Mrs. Torr's garden, Ewell. These were remarkably uniform as regards their size and profuse bloom, the kinds being *Magnet*, *Model*, *Cedo Nulli*, *Lizzie*, *Barclayana*, *Reine des Belges*, and *Duc de Nassau*. Mr. Thornton's gardener was next with a fine group also, including *Souvenir de Prince Albert*, *Juliana*, *General Todleben*, *Gladstonei formosa*, *Flag of Truce*, and *Gigantiflora*; the other collections were not remarkable. The nurserymen's class for eight plants was represented by four collections also, that from Messrs. Jackson being first. It contained good plants of *Estandard de Flandre*, *Roi d'Holland*, *Duc de Nassau*, and *Bernhard Andreas*, a fine flat-headed plant not trained, and the orange-yellow *Azalea sinensis*, all fine exhibition sorts. There were some half-a-dozen collections of fifteen plants which formed an open class, but only the first three were noteworthy. That from Messrs. Jackson was first. It contained well-flowered plants of a uniform size, and comprised many fine varieties, notably *Mad. Marie Van Houtte*, *Souvenir de Prince Albert*, *Estandard de Flandre*, *Jean Verschaffelt*, *Princess Louise*. The next group, from the Slough Nursery, included among others the new white *Madeleine*, *Mons. Thibaut*, *Reine des Fleurs*, *Duc de Duchesse de Nassau*, *Roi d'Holland*, *Flambeau*, a deep crimson, and several other beautiful sorts. The third collection, though well flowered, was not so uniform; the varieties, moreover, were not remarkable.

Roses.—These were contributed only from one nursery—that of Messrs. Paul and Sons, Cheshunt—who showed in the open class for twenty plants in 10-in. pots, and the nurserymen's class for nine specimens. The latter were very fine, large, and superbly flowered, and in fresh condition. The kinds were *Celine Forestier*, a huge plant, *Charles Lawson*, *Anna Alexieff*, *Miss Ingram*, *John Hopper*, *Alfred Colomb*, *Francois Fontaine*, *La France*, and *Marie Rady*. Among the twenty plants were *Glory of Cheshunt*, *Mrs. Laxton*, *John Stuart Mill*, *Alba Rosea*, *Francois Michelin*, *Abel Grand*, *Duchesse de Vallombrosa*, *Miss Ingram*, *Madame Lacharme*, *Dupuy Jamain*, and *La France*, all excellent varieties and particularly suitable for pot culture. There was one miserable collection in the amateur's class for six plants, which was awarded a third prize. This class was worse represented than it has been of late years, and it has never been very fine, a proof that amateurs as a rule are not adepts in the culture of pot Roses.

Hollies.—The class for fifteen varieties of these was a new item in the schedule, but there was only one collection shown, that from Messrs. Cutbush, who had a fine group consisting for the most part of handsome pyramidal plants. The varieties were *Watereriana*, *Scottica*, *Argentea*, *Reginae*, *Handsworthiensis variegata*, *Medio picta*, *Ferox aurea*, *F. argentea*, *Angustifolia argentea marginata*, *Lutescens*, *Hodginsii*, *Grandis Argentea marginata*, *Medio picta aurea*, *Aurea Reginae*, all with variegated foliage.

Pelargoniums.—Of these the only noteworthy collections were those from Messrs. Little and Turner, the others being decidedly below the average quality of exhibition plants. In the class for nine plants of the Show varieties Mr. Little was first with a superbly flowered collection all uniformly of large size. It comprised *Prince Leopold*, a grand plant, *Miss Hoyle*, *Kingston Beauty*, *Pericles*, *Sultana*, *Hermit*, *Rob Roy*, *Princess Alexandra*, and *Snowflake*. Mr. Turner had also a superb *Prince Leopold*, likewise *Claribel*; and Mr. W. Matthews showed smaller plants of *Duchesse*, *Despot*, *Miss Hoyle*, *Archduke*, *Emperor*, and *Mab*. The Fancies were only shown by Mr. Little in anything like a creditable condition, the others being far below his group, in quality indeed scarcely worth admitting to the competition. In his collection were fine examples of *Princess Teck*, *Ellen Beck*, *Duchess of Edinburgh*,

Juliet, Mrs. Hart, Roi des Fantasies, and Lady Carrington, the latter a half specimen plant of a new and very beautiful variety.

Begonias (Tuberous).—The class for these was an open one and was to include 30 plants in not fewer than 20 varieties. Two collections only were shown, from Messrs. Laing and Mr. H. Coppin. The former was first with a splendid collection of well grown plants embracing a large number of varieties, several quite new kinds. The most conspicuous were Robusta, Ann Laing, J. B. Farrand, Hon. Mrs. Brassey, Devoniensis, Rose d'Amour, Stanstead Rival, a splendid sort, Lady Hume Campbell, a delicate blush, Massange de Louvrex, Marquis of Salisbury, Countess of Rosslyn, a beautiful rose tinted kind, Pollie, a good sulphur yellow, Alba floribunda, a fine white, and Commodore Foot, a distinct and profuse flowering sort and a profuse flowerer. Mr. Coppin's collection was also good, and comprised some well grown plants and some excellent varieties, among which the finest were Mr. C. Goschen, with large rosy tinted flowers, Flame, a brilliant scarlet, Vesuvius, Rêve d'Or, a good yellow, Mr. G. Gladstone, Orion, Sir G. Wolseley, Beauté de Sceaux, Snowflake, and Venus.

New Plants.—It is a somewhat remarkable fact that but few of these were shown, there being but one exhibitor in the classes for twelve new plants sent out in 1880 and 1881, and for twelve not in commerce. Mr. Bull only exhibited in these classes. In the former he had Anthurium Andreanum, A. insigne, Dieffenbachia triumphans, D. Leopoldi, Croton formosum, Davallia fijiensis, Asparagus plumosus, Philodendron Carderi, Adiantum aneitense, Aralia spectabilis, Dracena Lindenii, and Juncus zebrinus. The twelve plants not yet in commerce represented, Croton insigne, Geonoma Blunii, Sansevieria flabellata, Dieffenbachia regina, D. Rex, Alsophila tœnitis, Dracena Pacotti variegata, Sarracenia flava splendens, Aralia concinna, Selaginella involvens variegata, Deyeuxia elegans variegata, Illicium religiosum variegatum.

There was a poor competition for Mr. Bull's silver cups, offered for new plants sent out by him. Two collections were shown in the private growers' class for plants sent out since 1878. Mr. Penfold showed for the first prize Davidsonia pruriens, Croton roseo pictum, Dieffenbachia splendens, Croton gloriosum, Carludovica Drudei, Cyphokentia argentea, Croton Chelsoni, Dieffenbachia Leopoldi, Calyptroma Swartzii, Selaginella Kraussiana aurea. Mr. Selway had, among others, for the second prize, Eucephalartos Friderici Guilielmi, Croton Williamsi, C. princeps, C. Challenger, Ixora Chelsoni, Sarracenia flava ornata, Anthurium insigne, and others mentioned above. There was but one collection from private growers who had not previously won a cup. It consisted of Sarracenia atrosanguinea, Dieffenbachia Shuttleworthii, Davallia fijiensis, Lastrea aristata, Adiantum aneitense, Croton formosum, Asparagus plumosus, and others named previously. This collection was from Mr. Yates, Blackburn.

Groups of Plants.—Those arranged for effect on a space of 300 sq. ft. were four in number. None of them call for special comment, and they embodied no decidedly new feature. The first-prize group was too crowded to have a pleasing effect. It consisted of ordinary plants, chiefly of Palms, Ferns, Lilies, Pelargoniums, and the usual kinds of decorative plants, but arranged rather monotonously, the principal aim apparently being to crowd as many plants on the allotted space as possible. In the second and third groups there were some really fine specimen plants which should properly be taken into account, but the fact is that the judging of groups arranged for effect is a nice point upon which but few agree as to what constitutes a fine effect. The group passed over was out of the ordinary style of arranging, but bore evidence of being a somewhat laboured arrangement, resulting in an incongruity of colours and harsh monotonous lines. It contained, however, some good plants, particularly of Erica Cavendishi, than which it would be difficult to imagine a better grown plant. The class for 100 miscellaneous plants in flower was represented by three collections. These consisted of well-grown plants of moderate size, consisting chiefly of Australian and other hard-wooded plants. Such a mixed collection of plants in flower arranged in a formal bank-like manner, and unrelieved by foliage, was anything but pleasing, and the great variety of subjects created a confused effect.

Miscellaneous Class.—This was a numerous one, and contained many interesting exhibits. There was an extensive display of cut Irises, Ixias, Pyrethrums, and other plants from Messrs. Barr and Sugden, occupying a large space in the long tent; Pyrethrums in fine variety from Messrs. Kelway and Ware; Pansies in large numbers from several exhibitors; ornamental Grass, dried flowers, cut flowers, from Messrs. Hooper; hardy Azaleas, Irises, and other hardy flowers, as well as plants, from Messrs. Osborn; a large collection of miniature and other Cacti from Mr. Boller; a collection of new and rare plants from Mr. B. S. Williams; hardy Cacti from Mr. Loder, Northampton; and a group of Pelargoniums, &c., from Mr. Turner, Slough.

Fruit.

This was scarcely up to the average of corresponding exhibitions in previous years, though there were some creditable productions, especially considering the comparative early date. It is a noteworthy fact that fully a third of the entries were not represented, a circumstance which must cause some trouble to the superintendent who provides space.

Grapes.—Though numerous exhibited, there were but few really good bunches, and some were scarcely presentable for an exhibition table. Of three bunches of Black Hamburgh there were some ten exhibitors. The three shown by Mr. Loudon for the first prize were uncommonly fine, the bunches and berries being large and perfect as regards finish, showing that the exhibitor can maintain his position as a first prize taker for several years in succession. The next two exhibitors had fair bunches, but much inferior to the first. Black Grapes of any other variety were shown by Mr. Bolton, who had good bunches of Black Prince; and the same variety was shown by the other exhibitor. There were only two exhibitors of two bunches of Muscat of Alexandria, and neither of their bunches were remarkable for size or finish; the second prize was withheld. White Grapes of other varieties were shown best by Mr. Mowbray, Slough, Buckland Sweetwater being the kind represented; Foster's Seedling was shown for the second and third places also by the other exhibitors.

Strawberries.—These were shown finely, though not very numerous. Of two dishes there were but three exhibitors. The best came from Mr. Norman, Hatfield House, who had excellent dishes of President, Sir Charles Napier, and Sir J. Paxton. The other dishes contained La Sucrée, James Veitch, in fine condition. Single dishes were more numerous, there being nine exhibitors. President won the first three prizes, all being very fine, especially the first, from Mr. Mortimer, Reading, whose fruits were large and highly coloured. James Veitch and Vicomtesse Héricart de Thury were also shown well.

Peaches and Nectarines.—These were not remarkable for high quality. Mr. Crump, of Blenheim, showed for the first prize a creditable dish of Grosse Mignonne, while Early York and Rivers' Victoria, shown by Mr. Hinds and Mr. Austen, were second and third. Other kinds shown were Hale's Early, Early Grosse Mignonne, Royal George, and Stirling Castle. Nectarines were poorly shown. Sir Charles Napier took the first, and Stanwick Elruge the second prize. Cherries, likewise, were few; Mr. Miles, of Wycombe Abbey, showed the best in both classes. In the two dishes he had excellent fruits of Black Circassian and Governor Wood, and the single dish was also Black Circassian; May Duke and Bigarreau Napoleon were shown well by the other exhibitors.

Pine-apples.—These in each of the classes were poor, with the exception of a fine pair of Smooth Cayennes from Mr. D. Wilson, Castle Hill, which each weighed upwards of 6 lb. The Queens were small, and there was but a single fruit of Smooth Cayenne shown in the class for that variety. In the class for one fruit of any variety a fine Charlotte Rothschild took the first prize; Prince Albert, a new conical-shaped sort, the second; and Black Jamaica the third. These were the only three exhibits.

Melons and Tomatoes.—The former, as usual, were numerous, there being eighteen fruits shown. The first prize was taken by a handsome fruit of Golden Gem, a white-fleshed round sort shown by Mr. Miles, while Hero of Lockinge took the second and third prizes. This variety is of excellent quality, and was shown very well on this occasion. Other kinds shown were Hero of Bath, Read's Scarlet Flesh, Blenheim Orange, Duke of Edinburgh, High Cross Hybrid, Chalfont Hybrid, William Tillery, and Conqueror, all excellent sorts, particularly for early cropping. Tomatoes were shown in good condition by six exhibitors. Mr. Ward took the first place with a fine dish of Stamfordian, Acme took the second, and Orangefield the third prizes, while Excelsior was represented well in other dishes.

Vegetables.—These were excellent, and the first and second places were closely contested by Mr. Austen and Mr. Miles, who were placed in the order named. The former had a fine collection, consisting of Veitch's Early Forcing Cauliflower, Sir J. Paxton Bean, Early Nantes Carrot, Crook's Walnut Potato, William the First Pea, Duke of Connaught Cucumber, Conner's Asparagus, Stamfordian Tomato, Early Munich Turnip, and Moore's Vegetable Marrow. Included in the second collection were fine Canadian Wonder Beans, Lapstone Potatoes, Tender and True Cucumbers, Laxton's Unique Pea, and Heartwell Cabbage. Other vegetables shown were Red Tripoli Onions, Snowflake and Imperial Lapstone Potatoes, Excelsior Peas, and a fine dish of Mushrooms in one of the collections.

Messrs. Sutton & Sons' Prizes.—The valuable prizes offered by this firm were competed for by numerous exhibitors. In the class for two kinds of Melons, Hero of Lockinge to be included, and two kinds of Cucumbers, to include the Duke of Connaught,

the best came from Mr. Lockie, who had fine examples of Read's Scarlet Flesh and Sutton's Hero of Lockinge Melons, and Improved Telegraph and Duke of Connaught. Throughout the collections, which numbered about fifteen, Improved Telegraph was shown for the non-stipulated variety among Cucumbers, and Hero of Bath, Benham Park, Horticultural Prize, all Messrs. Sutton's varieties, were shown among Melons, and without exception all in fine condition. There was a poor competition for four dishes of Peas, half a peck each, to include two of Messrs. Sutton's varieties. Two collections only were shown from Mr. Ward and Mr. Chettleburgh; the former had Ringleader, Emerald Gem, William I., and Dickson's First and Best; the other had American Wonder, William I., Excelsior, and Dillstone's Improved.

The prize offered for a collection of six kinds of fruit was competed for, there being only one collection, and that was an inferior one, the kinds being Black Hamburg Grapes, Hero of Bath Melon, Grosse Mignonne Peach, Brown Turkey Figs, a Queen Pine-apple, and Strawberries.

Mr. Sage, Ashridge Park, Berkhamstead, showed a huge bunch of Bananas, weighing 98 lb., another proof of the skill of the exhibitor in growing Bananas. He was awarded a silver medal for this exhibit. Cucumbers and Melons were shown by various exhibitors, the Cucumber Wells' Improved being considered very good by the judges. It was shown by Mr. Wells, Redhill.

Implement Exhibition.

The display of garden implements, structures, tools, and appliances was on this occasion unusually extensive and of a highly interesting character. The principal part of the lawns and also the council room were occupied by the exhibits, which were conveniently arranged according to the sections in the schedule. In each of the fourteen classes there were two prizes awarded, a silver and a bronze medal, while gold medals were given for the largest displays, and certificates of merit to deserving exhibits.

Garden Cutlery.—An extensive display of all kinds of knives and other garden cutlery was exhibited by Messrs. Saynor, Cooke, and Ridal, Sheffield, to whom the first prize was awarded. A similar display came from Messrs. Dick Radclyffe and Co., and from the Standard Manufacturing Company, Derby, came two ingenious contrivances, one a tree pruner, the other a fruit gatherer. The former is a useful instrument for cutting off branches from 10 ft. to 20 ft. from the ground. The hooked knife cuts clean without bruising branches an inch or two in thickness; it is so light it can be worked with comparative ease. The lengths are made from 4 ft. to 10 ft. The fruit gatherer is a similar contrivance for gathering fruits beyond ordinary reach; a pair of scissors terminating the long handle, and working horizontally, cuts the stalk of the fruit, which falls into a bag-like net placed immediately under it.

Garden Pottery.—The largest exhibitor of this was Mr. J. Matthews, Weston-super-Mare, who had an extensive display of all kinds of terra-cotta pottery. It included, besides pots of all sizes from the huge "bushels" to the tiny "thimbles," numerous specialties. Among these were the shallow suspending Orchid pans, now becoming so extensively used, and deservedly so, by Orchid growers; also a modification of the same principle applied to pots for Orchids, in which there is a movable bottom resting on a projecting ledge, about a third of the distance of the depth of the pot, so that all the advantages derived from the pan system can be obtained by this arrangement without the stunted appearance of ordinary pans. Orchid baskets are another specialty, that adapted for growing Stanhopeas being particularly noteworthy. Then there are Alpine plant pots; "Oxford" pots with perforated rims for growing specimen trained plants in; Hyacinth pots, very deep, and well adapted, also for Lily culture, propagating pans and pots, and rustic suspending pots in terra-cotta. Window boxes in numerous designs, some of them particularly handsome, especially those with a place at each end for pot plants, were also shown, together with a host of vases of all sizes, shapes, and designs. A new roofing tile, called Poole's Patent Bonding Roll Square Cornered Tile, is among the most noteworthy of the novelties. These are said to be proof against wind-stripping and rain drifting, and on account of their overlapping grooves, they have a singularly effective appearance on a roof.

Garden Tools.—There were large collections of these from Messrs. Nettlefold, Thornton, and Wrinch; the former was awarded the silver medal for a fine display of highly-finished ware, which included all kinds of tools used in gardens. Mr. Thornton's collection was particularly interesting, as it not only included tools in general use in gardens, but also those employed in market gardens, many of which are rarely if ever seen in private places, though they ought to be, as by their means work may often be done in a more expeditious manner. No fewer than two hundred different kinds of tools were represented in this collection, besides various other objects not ranging under the definition of tools.

Wirework.—The silver medal in this class was awarded to Messrs. Thomas & Co., Edgware Road, who exhibited a large collection of all kinds of wirework applicable to gardens. It comprised spacious wire aviaries, Rose temples, archways, frames, bordering fences, Pea guards, netting, and numerous other things, all of the highest finish. Other similar, but less extensive, displays came from Mr. Holliday, who won the bronze medal, and from Messrs. Radclyffe and Wrinch.

Garden Seats, Chairs, &c.—This was a numerous class, there being nine exhibitors. There was a close competition for the medals between Messrs. Boulton & Paul and Messrs. Thomas's exhibits, both of these firms showing excellent construction and good designs, the only apparent difference being in the tent seats, one having an endless chain arrangement for winding the canvas under the cover, the other one with a cord arrangement. There were several pretty designs for flower-stands, vases, and window boxes. Messrs. Thomas took the first and Messrs. Radclyffe the second prize. There were three other competitors in this class, one of whom, Mr. Westwood, of Nunhead, exhibited his patent non-destructible window boxes. Mr. Fox, of the Society's gardens, was awarded the silver medal for rustic adornments, which his fine display in the way of summer houses, seats, &c., worthily deserved.

Meteorological Instruments.—A remarkably fine display of these came from Messrs. Davis, and occupied a large space in the corridor. It included barometers in great variety, notably the Royal Polytechnic barometer, thermometers, hygrometers, and a host of other scientific instruments. To this collection a silver medal was awarded, while Messrs. Radclyffe won the bronze medal for a similar display.

Modes of Glazing.—The various systems of glazing without putty formed a highly interesting feature in the exhibition, there being eight different kinds shown. Certificates of merit were awarded to Mr. T. A. Bickley, Birmingham, for his patent system of glazing without putty. This consists of thin strips of pliable lead scolloped deeply and nailed to horizontal sash-bars; the pieces of lead are then bent alternately up and down so as to form dips to hold the glass. Though effectual in its purpose, it gives the exterior of the house a peculiar aspect. Messrs. Rosser & Russell have a system in which sheet lead makes a covering for the sash-bars, and is so curved as to give a firm grip of the glass with the aid of small brass pins. Mr. Causley's (West Hackney) system, which was awarded a certificate of merit, consists of metal cups on the sash-bars, pressed down upon the edges of the glass by means of screws, while a complete cap of metal, with the edges forming a gutter inside the house, acts as a protection to the wood, and serves also for carrying condensed vapour down the rafters and sash-bars. Messrs. Tracey, Ilford, showed their patent metallic tubular sash-bars, the edges of which receive the glass and keep it firmly in position, though it can easily be removed and replaced with but little trouble; a certificate of merit was awarded to this system. Mr. Helliwell showed a system in which metal plates over the rafters, and metal caps fitting over the sash-bar and pressing on the surface of the glass, renders the whole perfectly waterproof, and keeps the glass firmly in position. This also may be taken out or replaced with ease. Lawrance's system of glazing without putty is on the same principle as the preceding, though somewhat modified in the arrangement, and that exhibited by Messrs. Johnson is somewhat similar.

Hothouses, &c.—Messrs. Foster & Pearson, Beeston, Notts, were awarded the silver medal in this class for a span-roofed greenhouse and portable frames, the latter being particularly noteworthy on account of the simple, yet effectual, arrangement for removing and replacing the lights as well as for ventilation. The same exhibitors also showed their patent slot throttle valve, the working parts of which can be easily removed for repair without disturbing the other parts of the valve. Mr. Helliwell took the bronze medal for a handsome greenhouse, well built, and glazed without putty.

Mowing Machines.—These were numerous, though there was nothing absolutely new with regard to their construction, except a contrivance for the delivery of grass in large horse machines. This was shown by Messrs. Ransomes, Head, & Jefferies, Ipswich. It is decidedly superior to the old arrangement for throwing out grass, and is far less likely to get out of order, on account of its simplicity and strong construction. The inventors received a certificate of merit. The same firm also showed the "Automaton," "Globe," "Reversible," and "Horse Power" machines, all of first-class make and very efficient, and for which the firm were awarded a bronze medal. Messrs. Green took a silver medal for their mowing machines, which were represented by the "Silens Messor," and the horse power machines with new patent side delivery Grass boxes. Other machines exhibited were the "Excelsior" from Mr. Clarke, Twickenham, who was awarded a certificate of merit; also the "Coventry," "Villa," "Favourite," "Senior," from various other exhibitors.

Garden Engines, &c.—The first prize in this class was taken by Messrs. Boulton & Paul. This exhibit included the Hamburg lawn watering barrel, which is fitted with a powerful garden engine and a valve and spreader for distributing water or liquid manure. Messrs. Arnold took the bronze medal for their patent simplex garden pump. Among other exhibits in this class was a patent irrigator from Mr. Deverill, Slough. It is a self-acting apparatus for watering lawns, &c., consisting of a horizontal tube fitted at intervals with jets and sprays. It may be easily affixed to any trap or hydrant, and is very effectual for watering lawns, shrubs, fruit trees, &c., and also for houses. The water is distributed either in a mist-like spray or in a powerful jet.

Boilers, &c.—These were not very numerous. The premier prize, a silver medal, was taken by Messrs. Green & Son, Blackfriars Road, for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel. "Ben's" boiler, exhibited by Mr. Warhurst, was awarded a bronze medal. It is a ribbed and flued saddle, said to have great power with a minimum consumption of fuel. Other descriptions of boilers exhibited included a wedge-shaped kind from Mr. Watson, St. Albans, and a square tubed upright kind from Mr. Wagstaff.

For a new swing Peach tree protector Messrs. Johnson were awarded a certificate of merit. By this contrivance the trees may be either covered or exposed instantly, and it will be found superior to permanent copings on that account, or the protector may be entirely removed without much trouble, leaving only the supports, which are permanent. Mr. Hope, Birmingham, showed a handsome conservatory and various other structures, including sections of hot-houses constructed entirely of iron and glass with the exception of the sash-bars, which are of copper.

Certificates of merit were also awarded to Mr. Adie for the Pall Mall Lawn Edger; Mr. Cains for his Patent Portable Tent; Standard Manufacturing Co. for "Standard" Tree Pruner. A silver medal was awarded to Messrs. Dick Radclyffe and Co. for a miscellaneous collection of garden adornments and table decorations. The two gold medals awarded for the largest general display in the show were taken by Messrs. Boulton and Paul and Messrs. Thomas.

A list of awards will be found in our advertising columns.

BATH AND WEST OF ENGLAND SHOW.

JUNE 6 TO 10.

THIS was considered to be the most extensive exhibition ever held by this society, all the departments, especially those devoted to machinery, being well filled. The horticultural department, which concerns us most, was under the superintendence of the Hon. and Rev. F. T. Boscawen, who arranged the exhibits as well as it was possible to do so under the circumstances. Most of the plants being large and tall, it was no easy matter to arrange them effectively on high wooden stages, which we may remark would have been better out of the way. A much better result might have been obtained by placing the plants on the grass. One of the principal features in the show was a bank of *Rhododendrons* from Messrs. Cripps and Sons, of Tunbridge, who also exhibited a choice assortment of cut blooms of *Clematis* backed up with neat little plants of Japanese Maples. A good display of Orchids was contributed by Sir Wm. Marriott, Down House, Blandford, and a large collection was expected from Sir Trevor Lawrence, but which had not on Monday evening arrived. Dr. C. W. Simmonds, Tunbridge, exhibited a wonderful plant of the white Paris Daisy, grown in the form of a dwarf standard. The head was quite 5 ft. across, and a mass of blossoms. Among other plants most worthy of notice was a neat specimen of the beautiful old *Vinca alba*, now seldom seen in an exhibition tent. A bank of Mr. Laing's *Begonias* attracted much attention on account of the immense size and the brilliant colour of their blossoms, and the massive Palms and other fine-leaved plants were amazing to many unaccustomed to flower shows.

The first exhibition of Asparagus, instituted by the editor of this paper, took place on this occasion during the past week. It was somewhat more limited than was desirable, but withal interesting in showing that excellent Asparagus might be grown in various soils in this country; by that we mean, Asparagus that would be as saleable in our markets as the best foreign produce. Although the quantity shown was not large, the quality generally was good. There was some irregularity in the railway arrangements, which prevented some of the exhibits from arriving in time for the judging, or, as far as we can learn, from arriving in the show-yard on the first day at all.

There was in all sufficient proof that on various soils and in various districts of the country Asparagus may be grown which will compete

with the best foreign produce. We trust, encouraged by the success of the present year, good gardeners and market gardeners in all parts of the country will compete, and that these competitions, which will be continued from year to year, will attain their object, and prove that we in England may be independent of foreign sources for this vegetable during the season of its perfection in this country.

The competition as has been stated, was not so great as might have been expected, but most of that which was shown was remarkably well grown. Mr. Harwood, of Colchester, well won the five-guinea prize for the best 300 heads in the class open to the United Kingdom, and Mr. C. Philpot, market gardener, Feldland, Sandwich, showed two very creditable bundles in the class for 200 heads grown by market gardeners in Kent. The first prize of three guineas was awarded. In the class open to gentlemen's gardeners for the best bundle of sixty heads Mr. Haycock, gardener to Roger Leigh, Esq., Barham Court, Maidstone, took the first prize of £4 with remarkably even, clean, and well-grown samples. Mr. Dickson, gardener to Captain Taylor, Hastings, was second with bright useful samples, and Mr. Allen, gardener to Lord Suffield, Gunton Park, was third with a bundle of large well-grown Asparagus, which would have been a good second only that it had been saturated with water, which had caused the heads to open and made them so soft that they got much damaged in packing. The fourth prize was awarded to W. Spottiswoode, Esq., Coombe Banks, Sevenoaks, for a bundle of good ordinary Asparagus. Mr. James Stewart, Langford Park, showed a bundle of heads which were blanched quite white, and from which some twenty really perfect specimens could have been selected; but the rest were so deformed and uneven that the bundle could not as a whole be placed before the bundle of fresh though ordinary Asparagus just alluded to.

MANCHESTER HORTICULTURAL SOCIETY.

JUNE 3, 4, 6, 7, 8, 9, AND 10.

THE annual Whitsuntide show of this society this year, although somewhat less than usual in quantity, was quite up to the average in the quality of the various exhibits brought together. Flowering stove and greenhouse plants and fine-leaved subjects were alike excellent—not so much remarkable for extraordinary size as for their fresh healthy condition. Orchids, as generally met with here, were in themselves such an exhibition as is not to be seen elsewhere, there being scarcely so much as an indifferent plant amongst them.

Stove and Greenhouse Plants.—These were well shown, the four groups competing making an imposing display. Mr. Tudgey, gardener to J. F. G. Williams, Esq., Worcester, was well ahead with a beautiful lot, amongst which were three splendid *Heaths*, *Cavendishi*, *ventricosa magnifica*, and *ventricosa coccinea minor*; *Ixora Williamsi*, magnificently bloomed, the trusses large and finely coloured; *Dracophyllum gracile*, large, fresh, and well flowered; these were well supported by large, handsome foliage plants, conspicuous amongst them being *Croton Queen Victoria*, *Cycas circinalis*, *Pritchardia pacifica*, and other fine Palms. Mr. Lingard, gardener to H. Samson, Esq., Bowdon, who came in second, had a well-bloomed collection, the most remarkable of which were *Ixora Colei*, *Dipladenia amabilis*, and *Statice profusa*. Mr. Paul, gardener to S. Schloss, Esq., Bowdon, was third, having in a very creditable lot *Stephanotis floribunda* (grandly bloomed) and *Anthurium Scherzerianum* (beautifully flowered). Eight stove and greenhouse plants in flower (amateurs).—First, Mr. Smith, gardener to W. J. Rylands, Esq., Stretford, with an evenly-flowered, medium-sized group, the best of which were *Hedera fuchsoides* and the pretty white *Heath perspicua nana*. Twenty stove and greenhouse plants, ten in flower and ten foliage (nurserymen).—First, Mr. Cypher, Cheltenham, with very fine plants, consisting of *Erica Cavendishi*, *Pimelea spectabilis rosea*, a good *Anthurium Scherzerianum* with large finely-coloured flowers; *Ixora regina*, fresh and beautifully bloomed; a grand *Bougainvillea glabra*, and *Azalea Holfordii*. Amongst his fine leaved subjects was a magnificent example of *Encephalartos villosus*, *Cordylina indivisa*, *Croton Disraeli*, and *Verschaffeltia splendida*. Messrs. Cole, The Nurseries, Withington, who were second, had also a very fine group, their best flowered plants being *Hedera Tulipifera*, young, vigorous, and finely coloured; *Erica Spenceriana*, well flowered; *Franciscea calycina* and four beautifully bloomed *Azaleas*, *Iveryana*, Mrs. Fry, Criterion, and Magnificent; their fine-foliated plants were in good order.

Orchids.—In the amateurs' class for fifteen, Mr. Osman, gardener to R. B. Dodgson, Esq., Blackburn, was first with a group alike remarkable for their size and the profusion of flowers they bore; they consisted of *Masdevallia Harryana*, very fine variety; *M. Harryana* var., *M. Veitchiana*; these three examples bore from fifty to sixty large blooms each; *Vanda suavis*, with ten spikes of bloom open and more to come; *Odontoglossum vexillarium*, a

splendid plant; *Dendrobium thyrsiflorum*, seventeen spikes; *D. Wardianum*, 2 ft. through and 2½ ft. high, finely bloomed; *D. Ainsworthii*, large and smothered with its delicate white and purple flowers; *Cattleya Warneri*, bearing twenty-seven blooms; *C. Mossiae*, a little smaller; *Laelia purpurata*, twenty-four flowers; *Epidendrum vitellinum majus*, *Cypripedium villosum*, and two large specimens of different varieties of *C. barbatum*. Mr. Hill, gardener to G. Hardy, Esq., Pickering Lodge, Timperley, who was a close second, had a fine collection containing *Cattleya Mendelli*, well bloomed; *C. Mossiae*, a grand variety with some thirty-five highly coloured flowers; the stately *Thunia Marshalli*, with ten large racemes of its delicate coloured blossoms; the rare *Vanda Denisoniana*, bearing two good spikes; *Dendrobium Bensoniae*, a magnificently flowered *O. vexillarium*, a single plant with twenty-five long spikes, the finest Orchid in the exhibition; *Orchis foliosa*, &c. Nine Orchids (amateurs).—Here Mr. Mitchell, gardener to Dr. Ainsworth, Broughton, was well first, showing, as he usually does, the warmer East Indian kinds in fine condition; his best plants were *Phalenopsis grandiflora*, bearing ten spikes; a fine *Vanda suavis* with nine spikes; *Aerides Fieldingi*, large and well-bloomed *Dendrobium crassinode*, and *Saccolabium premorsum*, with six of its dense drooping racemes; second, Mr. Osman, with, amongst others, a splendid variety of *Cattleya Mendelli*. Six Orchids (amateurs).—First, Mr. Hill; second, Mr. Sherwin, gardener to M. Sparke, Esq., Huyton. Six Orchids (open), “made up” plants not admissible.—With these Mr. Mitchell was also first, having in his group an extraordinary example of the scarce *Aerides Schroederi*, carrying six spikes, *Saccolabium premorsum*, and *Aerides Fieldingi*; second, Mr. Boardman, gardener to G. Hodgkinson, Esq., Dunham Massey. Three Orchids (amateurs).—First, Mr. Hill, a fine *Odontoglossum vexillarium*, *Dendrobium thyrsiflorum*, and *Cattleya Mossiae*; second, Mr. Atkin, gardener to F. H. Allen, Esq., Timperley. One Orchid (amateurs).—Mr. Mitchell took first with a fine specimen of the white Butterfly Plant (*Phalenopsis amabilis*) bearing five drooping racemes of its handsome flowers; second, Mr. Tudgey, showing an unusually large-flowered variety of *Odontoglossum vexillarium*. Orchids (nurserymen).—Mr. B. S. Williams had first in the classes for both sixteen and ten, his best plants being *Cypripedium niveum*, with thirty-five flowers, *C. Stonei*, *C. caudatum*, *Cattleya Mendelli*, *Laelia purpurata*, and *Vanda suavis*, all well shown. Mr. Cypher who was second in each of these classes, showed smaller, but nicely managed plants, in which the beautiful *Vanda cœrulescens* bore six of its delicate white and blue coloured flowers, *Dendrobium lituiflorum*, and a remarkably fine form of *Masdevallia Harryana*.

New and Rare Plants.—In this class Mr. Williams took the first prize with a handsome group in which the *Aralia*-like *Oleobachia palustris*, *Dracæna Earl of Derby*, and *Dieffenbachia imperator* were very distinct in appearance. Mr. Cypher, who was second, had in his collection the extremely fine and distinct variety of *Anthurium Scherzerianum Hendersoni*, bearing intensely deep crimson spathes, 4½ in. broad by 5½ in. long, which as the plant gets stronger will no doubt come still larger. Six new or rare plants (amateurs).—Here Mr. Osman took the lead, having in a very good half-dozen a beautiful variety of *Cattleya Mossiae*, *C. Mossiae Dodgsoni*, with pure white sepals and petals, a large lip deep orange at the base suffused with a delicate mottling of purple and fringed with white, and the handsome form of *Cypripedium barbatum* named *Lawrenceanum*; second, Mr. Tudgey, showing along with others a good plant of *Anthurium Andraeanum*, bearing four flowers.

Ferns.—First amongst groups of eight, Mr. Paul with a beautiful group of healthy fresh plants, including the scarce *Brainea insignis*, 5 ft. across, *Goniophlebium subauriculatum*, 7 ft. in diameter, the fronds 8 ft. long. When well managed this is one of the handsomest Ferns grown. There were also several large *Gleichenias* in the collection. Second, Mr. Hesketh, gardener to A. Birley, Esq., Pendlebury, who had in a fresh medium sized lot good examples of *Cyathea medullaris*, *Cibotium Schiedeii*, and *Gleichenia dichotoma*. *Adiantums* were shown in quantity and good condition. Of six there were six exhibitors, Mr. Osman taking the lead with large examples, the best of which were *A. concinnum lætum*, and *A. tenerum*; second, Mr. Hill, who likewise had beautiful plants; third, Mr. Boardman, with fine specimens in faultless order. Filmy Ferns (six).—First, Mr. Tudgey, a well managed group, consisting of *Todea superba* and several *Trichomanes* and *Hymenophyllums*; second, Mr. Smith. Twelve hardy Ferns (amateurs).—First, Mr. Brockbank, Didsbury, with a very fine lot of plants, in which *Osmunda gracilis*, *O. regalis*, *O. regalis cristata*, and *Athyrium todæoides* were beautifully done; second, Mr. Leach, gardener to J. Wild, Esq., who also had a highly meritorious exhibit. Hardy Ferns.—Mr. Rylande, Ormskirk, staged a large and well varied collection in fine condition.

Palms, Crotons, *Dracænas*, Heaths, Azaleas, Pelargoniums, Roses, and Clematises were all shown in excellent condition.

Hardy Plants.—For these, Mr. Brockbank came in first with, amongst others, fine examples of the Edelweiss, the yellow *Onosma taurica*, *Lamium longiflorum*, *Campanula thyrsoidea*, *C. Wanneri*, *Verbascum phœniceum*, *Primulas* (of various sorts), *Lewisia rediviva*; second, Mr. Plant, gardener to R. P. Gill, Esq., Ashton-on-Mersey; third, Mr. Kay. Messrs. J. Dickson & Sons, of Chester, had a large group of alpine and herbaceous plants, and Mr. Brownhill, Sale, also showed a very fine lot.

Fruit.—Of this there was a small, but good display with ten dishes. Mr. Pratt, gardener to Lord Hill, Hawkstone, was first, with good Black Hamburgh Grapes, Early Rivers Peaches, Brown Turkey, and Grosse Monstreuse Figs, Grosse Mignonne Peaches, Eastnor Castle and Hawkstone Seedling Melons, and a couple of Pines. Black Grapes (two bunches).—First, Mr. Jameson, gardener to the Earl of Crauford and Balcarras, with, for the season, very good examples; Mr. Breese, gardener to Mr. Ackers, Congleton, second. White Grapes (two bunches).—First, Mr. Breese, showing Duke of Buccleuch—good bunches and big berries. Two Pines.—First, Mr. McGaw, gardener to F. J. Sumner, Esq., for Black Prince; second, Mr. Faulkner, Liverpool, smooth Cayenne. Single Pine.—First, Mr. Faulkner; second, Mr. McGaw.

Mr. B. S. Williams and Messrs. R. P. Ker & Sons each contributed large and varied groups of the newest and rarer kinds of flowering and fine-leaved plants. From Messrs. Standish & Co., Ascot, came a fine group of miscellaneous plants, blooming and foliage, interspersed with boxes of Gardenia flowers and cut Roses and Roses in pots. Messrs. F. W. and H. Stansfield, of the Todmorden and Pontefract Nurseries, a collection of hardy Ferns, comprising most of the best species and varieties. Messrs. J. Waterer & Son, Bagshot, a fine lot of hardy shrubs, consisting of Hollies, *Retinosporas*, various forms of the Lawson Cypress, and other plants of like character. Messrs. R. Smith & Co., a handsome collection of Acers, distinct in character, and well furnished with their feathery foliage. Messrs. Kelway, an excellent lot of double and single Pyrethrums in beautiful condition; amongst the best of the double kinds were *J. N. Tweedy*, crimson; *Voie Lactée*, blush; *Kreimbilda*, pink, white centre; *Captain Nares*, crimson; *Dr. Livingstone*, flesh colour; *Placida*, flesh colour; *Cleopatra*, blush with yellow centre; *Chamoise*, blush white rosy centre; *Progress*, bright crimson; *Rembrandt*, pale claret; *Mont Blanc*, white; *Princesse de Metternich*, white. Of single varieties now held in much the most estimation, the following were splendidly shown: *Zanetta*, pale pink; *Zuritus*, deep purple; *Village Maid*, flesh; *General Roberts*, flesh; *C. alpherma*, white; *Crimson Gem*, glowing crimson; *Mrs. Laxton*, deep violet-crimson; and *Rosy Morn*. These have all conspicuous yellow centres, and either growing on the plants or in a cut state are most effective. Mr. Ware, of Tottenham, had also a very fine display of these Pyrethrums, both single and double; amongst the single varieties, *Warei*, pure white; *George Nelson*, pale claret; *Ruby*, bright ruby; *Hamlet*, pink; and *Lightning*, vivid crimson, are all fine kinds.

LATE NOTES AND QUESTIONS.

Hedychium.—What should I do with the long thin leafy shoots of this plant which are not going to flower? The plant is in a large pot and will have three spikes of flower, I hope. When is the time for propagating it, and how?—M. E. G.

Heating.—Can any one tell me from his own experience how to heat a London conservatory 13 ft. by 14 ft. by 13 ft. without smoke, smell, or much firing? Is there any gas or oil stove that has no smell, or harmless Ferns, to keep it at about 45°?—C. D.

Green Glass.—I have been recommended to glaze my greenhouse and stove with green glass. Will any one kindly give me their experience, whether this is an improvement on the common glass, if it affords any shade or acts beneficially on the foliage?—F. R.

Lawn Mowers.—*M. E. G.*—Both Shanks and Green keep machines capable of being drawn by a donkey. If the lawn has got, as you say, into bad order and full of Moss, it should be first closely mown with the scythe.

Insects.—*S. and A.*—Your caterpillar is a “looper” or “geometer,” so called from the peculiar action when walking; it will turn into a moth belonging to the family Geometridæ, but I am not able at present to name it accurately. I hope, however, hereafter to do so. Hand-picking or shaking the Ivy and collecting such as fall is the only means I can suggest of getting rid of them.—G. S. S.

—*J. M. K.*—The small beetle attacking your Beech leaves is one of the Curculionidæ, I believe *Orcheses Fagi*, but it was much damaged before it reached me.—G. S. S.

Names of Plants.—*T. H. A. H.*—*Ornithogalum pyrenaicum*.—*F. Fowler*.—1. *Halesia tetrapetala*; 2. *Staphylea pinnata*.—*R. O.*—*Lonicera tatarica*.—*Mac.*—Shrub is *Viburnum Opulus*; other, *Thalictrum aquilegifolium*.—*H. L. C.*—*Mespilus grandiflora*.—*Subscriber*.—1. *Listera ovata*; 2. *Funkia subcordata*; 3. *Onychium japonicum*.—*H. and Co.*—Apparently *Polypodium Blandieri*.—*C. H.*—1. *Campanula glomerata speciosa*; 2. *Rhododendron hirsutum*; 3. *Ledum palustre*; 4. *Andromeda catesbeii*.—*J. S. T.*—1. *Mespilus grandiflora*; 2. *Syringa Emodi*; 3. *Boursalt Rose*; 4. *Spiræa callosa*.—*Mrs. A.*—*Pyrus Aria* var. *Lucombe*, *Pince* and *Co.*—*Rhododendron blandfordicum*.—*Lord C.*—*Staphylea pinnata*.

Correspondents who do not find their questions answered in due course either in this column or in the various departments will oblige by repeating them.

No. 500.]

SATURDAY, JUNE 18, 1881.

Vol. X. 2

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NATIVE WILD FLOWERS FOR THE ROCKERY.

THE GARDEN has always encouraged a taste for the cultivation of wild flowers, and those who think that the only proper place for these is a wild garden or a natural bank should remember how many town houses and suburban villas have owners who love wild flowers, but have no space to devote to wilderness. And there are many towns, such as Matlock and Great Malvern, where the rockeries with which the gardens abound are not made the most of, being smothered with white Arabis and Mossy Saxifrage and two or three common Sedums, to the exclusion of gayer flowers quite as easily grown. In recommending a few native flowers for such places I do not mean flowers called native only by courtesy, or those which are so rare or so generally cultivated as to be better known as garden than as wild plants, but flowers which may either be found anywhere or which are locally abundant in many parts of the kingdom, even though they may look best on their native banks where they have to fight their way amongst Grass and coarser plants; they look very well when they revelluxuriantly in a space cleared for them, and their flower-heads have only to struggle with one another for the most conspicuous place to display their beauty. When I speak of rockeries I do not mean heaps of rocks or stones placed to fill up dark and shady corners where nothing will grow but Ferns, but the facings of sunny banks or piles of large stones with soil inside raised in the most open part of the garden. Rock plants, as a rule, delight in full exposure to sun and air, though there are some exceptions. The first plant I mention is the common Bird's-foot Trefoil (*Lotus corniculatus*), which is easily cut to any size, and makes such a mass of gold colour through June and July as few plants can rival. Then there are the biennial *Geranium lucidum* (the Shining Cranesbill) suited for any shady corner, or for the angles and sides of rough steps. Its bright glossy foliage is invaluable in winter, and the scarlet tint of its old leaves in spring has a good effect. It may easily be established, and transplanted or weeded out. Then there is the common wild Thyme, for which a gravelly spot should be selected, and as the plant flowers all over, it may easily be cut to its proper limits. The white variety has flowers as pure as snow, and should not be omitted, as it contrasts well with the yellow of the Trefoil. The Trailing St. John's Wort (*Hypericum humifusum*) is common in most parts of the kingdom. It flowers late, but its elegant light green leaves and close habit make it a very good rock plant; being truly herbaceous, it does not encroach.

The Bluebell (*Campanula rotundifolia*) is superior to many of the alpine Campanulas. It requires care in getting up. If you mark a large plant on a stony bank to be got up in autumn, you will probably find that it has a tap root 1 ft. long, thicker than a large Radish, and with many branches from the end. These must not be broken, but you must imitate on your rockery the natural conditions. In this way large plants of many years' growth may be successfully moved. Several varieties of colour may be found, especially pure white and light lavender. The Wood Sorrel (*Oxalis acetosella*) will probably come up of itself on your rockery, but if not, unless crevices, where little else will grow, may be assigned to it. The Horse-shoe Vetch (*Hippocrepis comosa*) is abundant on chalk downs in the south of England, and on limestone rocks elsewhere. It is already known as a first-rate rockery plant, as I saw a fine stock of it lately at Mr. Robert Parker's nursery at Tooting. The Sea Bladder Campion (*Silene maritima*) is one of the most beautiful of wild flowers, as it grows in the fissures of its native rocks at Llandudno. I am very successful with it on my limestone rockery, where it is far more ornamental than the double form so common in nurseries. The Mountain Cudweed (*Gnaphalium dioicum*) abounds on the top of the Llandudno mountain, and on many other downs in the west of England. Planted on the exposed top of a rockery, it is always neat, but prettiest when in bud in May. At that time a patch containing three or four colours always reminds me of the coloured pictures of Aaron's

breastplate. The Common Dropwort (*Spiræa Filipendula*) is better known in gardens in its double form, but the bright pink of the buds is more conspicuous in the single flower-heads; though the stalks are rather tall, the foliage is neat and close growing, and the plant never does so well as on a sunny rockery. All the plants I have mentioned are easily obtained and easily grown, but most of them expect and deserve a good place. I could add many more, but should certainly exhaust the patience of your readers sooner than the list of plants.

C. WOLLEY DOD.

Edge Hall, Malpas, Cheshire.

ROCK PLANTS IN JUNE.

THOUGH a rockery chiefly devoted to alpine plants is more a spring than a summer garden, many of the prettiest, such as Primulas, dwarf Phloxes, &c., being now out of flower, there is hardly a day early in June when some plant does not come into flower. The following have been amongst the prettiest rock plants here this month, each one of which is worth growing, and for most of them a place could be found even on the smallest rockery. A few require a bog bed, but that is easily made, of any size, however small, and is almost a necessity in any rockery intended for good alpine plants.

The two prettiest kinds of *Dianthus* are *alpinus* and *glacialis*; *D. cæsius* (the Cheddar Pink) and *D. petraeus*, with a smaller, brighter, and less serrated flower, are worth growing; the white *D. pungens* and brown and white *D. pulchellus* are also in flower, the latter being the prettier. The bright little maiden Pink, *D. deltoides*, must not be forgotten, especially when it establishes itself on a mossy stone.

Campanula Portenschlagiana (*pichta*) and *turbinata* are the earliest of the dwarf Campanulas here, the former also one of the prettiest; and the taller *C. speciosa* (*glomerata speciosa*), with its heads of grey flowers, is in blossom. It would be difficult to find a hardier group of flowers than the Campanulas; not one out of the many kinds grown here was killed last winter. *C. isophylla* alba seemed dead, but is now coming up again well. *Saxifraga* Wallace, is just now the prettiest, though *S. longifolia*, *sarmentosa*, and several others in blossom could hardly be spared. *S. androsacea*, hardly 1 in. high, flower and all, is worth growing. The Fairy Rose and *Rosa pyrenaica* (the latter being like a rose-coloured form of the little Burnet Rose, now in blossom on sandbanks near the sea), *Lychnis Lagascae*, *Pentstemon glaber*, with bright blue and pink flowers, *Gypsophila cerastoides*, *Ourisia coccinea* (when it can be got to flower well), and the Blue Daisy are all good rock plants for June, and it is especially a month for hardy Orchids. *Cypripedium spectabile* is now flowering for the first time after some years of failure, caused by growing it in too dry a part of the rockery. *Orchis latifolia* major and *maculata* *superba* are fine forms of British Orchises, especially the latter kind, and the white form of *O. mascula* is effective. *Orchis foliosa* and some other Orchids are coming into flower; all are plants full of interest, and worth taking some trouble about as to their requirements, some needing damp, others partial shade, &c. *Myosotis rupicola*, *M. azorica*, and *M. Impératrice Elizabeth* now take the place of the earlier *Forget-me-nots*. The two latter are curiously alike, though *azorica* is rather a smaller plant, and perhaps its flowers are a little larger. *Houstonia cærulea* is covered with its almost white flowers; *H. serpyllifolia* is even prettier, and certainly more "cærulean." *Veronica Balfouriana*, a fine hybrid, is now nearly out of blossom, as is also *V. saxatilis*; a form of the latter given to me by the late Miss Hope seems to have flowers of a still more beautiful gentian blue than the ordinary type. Amongst other Veronics now in blossom, *V. Hulkeana*, while plants of it are small enough, is a beautiful rock plant, though larger plants are better suited to a wall or mixed border. *Lithospermum prostratum* is, of course, on every rockery, and it is flowering better than usual this year. Is the true *Lithospermum fruticosum* in common cultivation? The yellow Alpine Poppy is more fitted for the choice parts of a rockery than *Meconopsis cambrica*, though the latter is an excellent plant for a wild garden or mixed border. A Thunbergian Lily, with over thirty buds and flowers on its flattened flower-stalk, its ordinary stalks having but a few buds, is the earliest of our Lilies, but its orange-red flowers are by no means the prettiest. St. Bruno's Lily (*Anthericum Liliastrum*) and St. Bernard's Lily (*A. Liliago*) are very unlike the newer golden *Anthericum* (*Chrysobactron Hookeri*) from New Zealand. At this time of the year various leaves, especially Ferns, vie in beauty on the rockery with flowers; indeed, few even of the latter equal *Drosera dichotoma* when seen in full sunshine with its innumerable glistening drops bordering each leaf. The young pitchers of *Darlingtonia* are also very beautiful when the sun shines through them. The transparent spots at the top of the pitchers look as though this plant could easily "evolve itself" into one of the few plants known which

have perforated leaves. Amongst other especially pretty leaves are those of the variegated form of *Spiraea japonica* and the large peculiarly-shaped leaf, or head of leaves, of *Rodgersia podophylla*, which seems to prefer partial shade; and the golden and silver variegated forms of the common Heath, the latter being tinged with pink as well as white. C. M. OWEN.

EDITOR'S TABLE.

Weedy Plants.—We observe among the plants sent to us, and also frequently in cultivation, a number of plants that are unworthy of it. Among the immense number of plants brought to this country from all parts of the world there are a very large number of hardy plants which do not merit cultivation. On the other hand, there are few gardens that contain more than a small proportion of the really beautiful hardy plants that deserve cultivation. If our efforts in the direction of helping in these matters have been to some extent successful, it is because we have always urged the need of selection. It requires the very greatest care on the part both of nurserymen and the cultivator not to have in their collections things that will eventually neutralise the effect of the good kinds. At one time it was so difficult to get good plants that one grew anything obtainable; now, when there are such excellent collections of good plants, this is no longer needful. Be on your guard against rubbish. Ill weeds grow apace, and in the garden they often stamp their character on all their surroundings.

A Double Pomegranate.—From Rose Hill House, Ipswich, a pleasant surprise comes in the shape of a handsome double Pomegranate. It does well on houses at Bath, but that is far from Suffolk. Its cheery scarlet is precious. Mrs. C. Roberts writes: "The Pomegranate (the first and at present only blossom, though other buds are well forward) bloomed more than a week since on a south wall. The Pomegranate, so brilliant in flower and neat and glossy in foliage, looks well climbing up a house; besides it is deciduous, and therefore free from the objections of damp and insects urged sometimes against evergreen climbers. The York and Lancaster and old red Rose, and the old-fashioned white are common in this garden and very much prized, the buds are so pretty in form; and then there is the sweet Rose Céleste in bud, the perfection of a button hole; these as only summer Roses would, perhaps, be useless as exhibition flowers; but could not you suggest a class of Pomponé Roses? I think they would be popular.

Border Pansies at Midsummer.—We do not know why we should have supposed the Pansy in her fairest state to be now unseen only in the cool Scotch and northern gardens, but a rich and varied bunch of border Pansies from Mr. Arthur Cobbett, of Firfield, Weybridge, tells us that it is just as fond of the sweet air of the Surrey hills. Of all flowers that ever come to this country, or ever can come, surely this has given most pleasure to human beings, and been most faithful in rich and beautiful colour at all seasons and in all sorts of places. We wish we could say enough of the beauty of Mr. A. Cobbett's border Pansies. Why these lovely things should be so much knocked about into sections we never could clearly see. To some the term may mean that the plant has belonged to an inferior race, but this we cannot admit. My friend, Professor Syme, used to tell me that he thought *Viola altaica* was the parent of the Pansies. Will any one send me a plant or seeds of it? any one from Dr. Regel southwards?

A Noble Rose Acacia.—Mr. Stevens, of Byfleet, brings us a most beautiful and large specimen of this plant, which we believe, however, to be distinct from the old and generally scrubby, though pretty, Rose Acacia. Whether it is a distinct variety, or owing to some peculiar stock, we do not know, but hope to find out. Mr. Stevens reports that he has the ordinary kind presenting ordinary aspects in the same garden. He obtained it from France. All we can say is that for ample and fine foliage and large rosy blossoms it is one of the most beautiful flowering trees we have seen.

The Mountain Laurel.—He also brings us the pretty dwarf *Kalmia*, which seems a variety of *Kalmia glauca*. It is fully six weeks now since we saw the pleasant glow of colour for a long distance at Coombe Wood Nursery afforded by one of these dwarf *Kalmias*, so that they seem to bloom for a long time. The finest of the race (*Kalmia latifolia*) is, however, only now opening well. That it is a fine shrub may seem a trite saying to many who know it where it grows well, but we scarcely knew its character till seeing it last Monday in Bagshot Park, where bushes of it—in one case about 12 ft. high and 12 ft. through—were just opening their first flowers. The beauty of flower, good foliage, and evergreen character all go to make it a treasure in a district where it grows as it does among the Surrey hills. The English name here is a very good one,

and is not our own evil invention. In the same place, which has recently been aglow with *Rhododendrons* and *Azaleas*, we noticed specimens of what we have often expressed a wish to see more of—*Azaleas* allowed to show their form. A scarlet kind and a creamy-white one, both growing on the grass and entirely unpruned, quite free in their natural broken form, were very beautiful.

Flowers and Leaves of the Tulip Tree.—Much as we have said of the value of the foliage and flowers of trees and shrubs in a cut state, we had no experience of any such pleasure as that afforded by a basket of the flowering shoots of the Tulip Tree from the gardens at Margam, South Wales. In a large, shallow dish in the centre of a large table the effect was at once new and very good. Foliage, the large creamy sepals, and the delicate netted green and orange petals, so fine in form, all tend to give it the first place, in the presence even of all the fair flowers of the season. We hope to have an engraving showing the general effect, and also of a very fine fruiting shoot of the *Wellingtonia*, bearing a fine tassel of heavy, mature fruit and also young cones of the current year. Concerning the Tulip Tree, Mr. Muir says the blooms are a sample of thousands now open on a tree at Margam. This tree measures about 16 ft. round the stem at 3 ft. from the ground, and is upwards of 90 ft. high.

Yellow Spanish Iris.—The clear yellow Spanish Iris from Mr. P. Barr harmonises admirably with the Thunderbolt Iris, and both point to the need of reducing the number of varieties of Iris in each section, allowing the distinct varieties to "tell." The procession of the different races of Iris through our gardens from earliest spring is delightful and all who help in their development deserve our thanks, but why does Mr. Barr change the nomenclature in some cases? What need was there to affix the name *barbata* to a number of Irises perfectly well known in our gardens before by simpler names which we never heard were wrong? At Chiswick the other day, wishing to see if a handsome border Iris bore the name we knew it by, we found two or three long Latin names interposed between the genus and the variety! Now, good old Irises like *Victorine* or *De Bergi* were never in want of any such change, their position botanically was perfectly well known.

A Beautiful Iris.—It is rare to see so marked an improvement on any plant as a variety of the Siberian Iris named *Melpomene*, a most elegant plant with the slender leaves, and no doubt the hardiness, of the Siberian Iris, and a brilliant, deep violet flower with bronze markings, about four times the size of the flower of *sibirica*, or, measured, nearly 4 in. in diameter, the falls being 2 in. across. *Iris sibirica* is, in the presence of the many fine plants in the family, mainly useful as a waterside plant, but this will rank with the finest plants. We have been so much struck with it that we propose to figure it. This plant comes perfectly packed from the New Plant Company at Colchester. If Irises may be brought fully open without a mark, well, anything may be packed.

Roses.—An unending procession of fair flowers from the days of the Snowdrop at last brings us to the days of the Rose. On Wednesday, the 15th of June, Canon Hole was explaining to me that the beauty we all desire in our Rose gardens was difficult of attainment, owing to our climate. We thought *Gloire de Dijon* and a few early Roses all worth naming in bloom out of doors at the time. The same evening I saw Mr. Hawkins, of Twickenham (Hawkins of the big Lilies of the Valley), at Waterloo Station, with a number of large boxes, one of which he opened, containing many bunches of lovely, half-opened Roses grown in the open air. There was among them a good variety of Roses, both dark and fair. How did Mr. Hawkins get his blooms earlier than we get them in gardens generally?

Early Gladioli.—One of the most graceful jars of plants we have for some time had is that of early Gladioli, both the white and the crimson kinds. Some of these plants were common inhabitants of old gardens, nestling among shrubs and at the foot of walls, and have thus pleasant associations apart from their beauty. It may be worth remembering that at least one of these Gladioli, *G. communis*, is a native of the Isle of Wight and the New Forest, and could be naturalised in other places. Ours come from Mr. Burbidge.

The Thunderbolt Iris.—The very curious and not easily described Spanish Iris called Thunderbolt comes to us from Mr. T. H. Archer-Hind and also from the New Plant Company under the name of *Sordida*. Velvet-brown and brown-purple and yellow are the prevailing hues, but the flower must be seen to be remembered. It certainly is a very curious as well as a handsome plant, a group of which would be charming. A single flower is excellent for a room.

The True York and Lancaster Rose (*Rosa damascena*) comes from the Rev. H. T. Ellacombe, Clyst St. George, Devon. It is not a strong or a showy Rose, but very interesting and pretty. An odd flower is unstriped, or a delicate rose colour. It is well that some of our old gardeners keep to their old friends.

The Slender Scarlet Lily.—How beautiful and bright this is when well grown!—small Turk's-cap-like blooms, and in the finer specimens a perfect candelabrum. One specimen has eight flowers in various stages, and is perfect in grace and form. It comes from Colchester. It is seldom this Lily is so well grown, but its culture will probably be better understood in the future.

Pernettya Blooms.—These bushes, which are admired for their beauty of berry in autumn, are remarkable for the number of graceful Lily of the Valley-like flowers which they yield in spring, though we are not quite sure which is the best of them in this way, and it would be worth ascertaining.

French Poppies.—A glorious cloud of these from Miss Jekyll: Light pink, with white margin; rose-pink; rich carmine, with black stamens; crimson, with black stamens; dark crimson; scarlet; white petals, with pink bases. These plants sowed themselves in autumn; they are earlier than the larger opium Poppies.

The White Rockets are very fine from Dublin from the College Gardens, the growth being vigorous and the flowers profuse. The difficulties of growing the white Rockets depend, no doubt, on the kinds to some extent. This, the French kind, seems the most vigorous of the two.

The Hemlock Spruce.—We have spoken of the beauty of the foliage of trees this year, and have lately been greatly pleased with the budding Hemlock Spruce in many different gardens. On Monday we came upon some trees which at last justified the praise which it receives from those who know it at home. In Bagshot Park there are trees of the Hemlock Spruce which in grace and dignity equal the Cedar, if, indeed, in some respects they do not surpass it. Having so often seen this tree in almost a shrubby state, we had doubted its value and asked our many correspondents to tell us what it really was at home. Probably this peaty district suits it better, and that it is a tree that will not do equally well everywhere.

NOTES FROM DUBLIN.

THERE is a bright appearance about the new double varieties of the old *Pyrethrum roseum* which is very attractive to most people. Earlier than Asters and brighter than Chrysanthemums, they fill a void in the hardy plant borders in June, just as the spring flowers leave us and before the harvest of late summer blossoms begins. Some pure glistening white, rose, and magenta-coloured kinds are now very striking, and they contrast well with the stems of Lilies, among which they are here planted. There are few dwarf bulbs more effective just now than *Allium Moly*. Its clean, glaucous leaves are attractive from their first appearance, and its stiff, erect umbels, each bearing a bevy of golden stars, look bright and cheerful in the sunshine.

Spiraea trifoliata, an old-fashioned herbaceous species, is now but seldom seen. A small plant of it here under a greenhouse wall, planted out last spring, died down so soon after blooming at 1 ft. high, that I concluded it was dead. It, however, unexpectedly appeared this spring, and is now in flower, a single leafy shoot 2 ft. high, having the plaited serrate leaflets of a *Kerria* or *Rhodotypos*, except that they are tinged with red on their margins. The little pure white flowers are axillary on slender hair-like stalks. I am told it makes a bush 3 ft. or more in height when perfectly satisfied with its surroundings. Will some one kindly tell us more about it, and its likings in the way of soil and shelter? *Onosma taurica* is a showy, golden-flowered Boragewort, not too common even in good gardens. Golden Drop would be an appreciable name for it; it has been likened to the *Erica Cavendishi*, but the colour of its little golden bells is purer, and they are more gracefully supported on elegantly curved leafy shoots. Perhaps it may grow freely from seed. At any rate, cuttings made from its young growths root freely under a handlight in April, and this mode of propagation should be followed regularly, as the plant has an unhappy habit of dying off on some soils immediately after blooming. Those who regularly make up their minds to raise hardy plants from seeds (instead of propagating them by means of cuttings or division) have much pleasure in store. It is the slower process, but the results will be of a more satisfying kind, since sooner or later variety or what may be called individuality, if not additional hardiness and beauty, will be secured.

Can any one interested in hardy plants tell me the history or origin of a distinct and rare plant, with golden discs borne on leafy stems, 2 ft. in height? It is known in some gardens as *Balsamita grandiflora*, and is a Composite with golden flower-heads the size of a florin. The whole flower is a dense mass of disc florets, there being no ray florets developed, but when in bloom in August there

are few plants that attract attention sooner, or that are more boldly effective in its way. Speaking of Composite plants reminds me that the Sunflower, itself one of the oldest and most effective of cottage garden plants, is not nearly so often seen in good gardens as it deserves to be. We had specimens of it 10 ft. high in our borders last season, and they were much admired; indeed, we have quite a demand for their great flowers from artistic people.

Amongst Orchids now in flower, good forms of *Cattleya Warneri* come in opportunely, giving one a slight foretaste of the still more lovely flush of colour afforded by the true old autumn-flowering *C. labiata*. This last is the oldest and best of all the *Cattleyas*. *Cattleya Mossiae* in variety, *Vanda teres*, and *Odontoglossum citrosimum* roseum are each lovely and satisfying in their way. *Pleurothallis Grobyi* var., which I had from Mr. Chas. Green, is a microscopic wonder, and the Wheat-like flower-spikes of *Pholidota imbricata* are curiously interesting. For purity of colour, however, nothing is better than *Lælia purpurata*, the pure white sepalled variety, and *Masdevallia Harryana* var. *cœrulescens* is strikingly beautiful.

Of the larger, newer, and finer Clematises which have withstood uninjured an exceptionally hard winter we have now in great beauty *C. Fairy Queen* and *C. purpurea*, both raised and sent to us by Messrs. Cripps, of Tunbridge Wells. The one is a large 8-sepalled flower, 7 in. in diameter, of a bold appearance, and delicate lilac colour, altogether too bold and large for the most Titanic of Fairy Queens. *C. purpurea* is a compact cup-shaped (as opposed to salver-shaped) flower, the colour of which is rich like velvet. *C. (Atragene) cœrulea* is still lovely, and *C. montana* is not yet past. *Adiantum pedatum* is now lovely in a cool house, and the rosy-lipped *Cypripedium spectabile* bears it company, both lovely North American wood plants of the best class, and amenable to cool frame culture in every garden.

To-day (June 13) I went round our dear old garden, seeking flowers for the editor's table, and I hope the box containing them may reach you with its many hued contents in a tolerably fresh and recognisable condition. The flowers of all the Irises will of course be crumpled and crushed, but then if you only wait, every unopened bud will expand its butterfly-like wings fresh and pure in your vases of cool spring water; so also I hope will the soft golden Day Lilies.

This fact that Daffodils, and Narcissi, Irises, Lilies, Funkias, Hemerocallis, and other Liliaceous and Amaryllidaceous plants do really open their flowers when cut in the bud state, and after a long journey is a valuable one for all gardeners and florists to know rightly. Flowers are never so small as when in the bud state, and when expanded it is impossible for man to pack them half so tidily again. Even Water Lilies and Roses may be thus cut for packing and long journeys in the bud or the bursting bud stage, and so travel without injury; to attempt to send a Water Lily anywhere after it is once fairly expanded is the most forlorn of all hopes.

So far as I am personally concerned, I love the bursting buds almost more than the unfolded and displayed petals. Some flowers, however, afford all the stages of bud and flower in the same inflorescence; such are Irises and Lilies and Asphodels, wherein are typified "the days that were, the days that are, and the days which are to come!" I hope the white spires of the old Night-scented (dull or wet-day scented also) double Rocket may delight you and your flower-loving visitors as much as they have me. They came from the late Mrs. White. Here, planted at the end of a shady walk, they are most vigorous, and visible at a long distance off.

Speaking of shade reminds me that there are many fine-leaved plants, and not a few of the finer flowering kinds, which grow more luxuriantly under trees (if the soil be naturally moist) than elsewhere. *Spiræas* generally belong to this class; so also *Narcissus*, some Lilies, Funkias, and Day Lilies; Iris also. That hardy Ferns grow well in such places needs no remark, but *Pæonies*, *Thalictrums*, and the May Apples (*Podophyllum*) luxuriate in shade, and so do also *Crambe cordifolia*, *Ligularia macrophylla*, the stately *Delphiniums* and *Cimicifugas*, and earlier in the year all the different kinds of Hellebores.

Anemone alpina is now so rarely seen in cultivation that the question naturally arises, Where can seeds or roots of it be obtained? Many tourists must tread it under foot every season, just as is the case with the now well known *Pau Anemone* and *A. sulphurea*, which, after all, is perhaps only a form of *A. alpina*. As a rule *Anemone* seeds germinate so quickly, and the young plants attain the blooming stage so rapidly, that, given a supply of good ripe

seed in a fresh state, and all kinds of Windflowers, however rare now, should soon become plentiful in gardens.

A correspondent of THE GARDEN, "H. E.," quite recently started a good idea in its way, viz., that of sowing seeds in such positions as the resulting plants are destined to occupy, thus doing away with transplanting altogether. In some cases this might be very desirable, especially where all the gardening is carried out under one's own supervision. I have, however, never found any difficulty in transplanting even delicate things from the seed beds, but it is essential to sow thinly, as crowded seedlings soon starve and destroy each other. One difficulty when seeds are sown on open borders is that weeds come up amongst them, and then an unlucky stroke from the hoe settles both seedlings and weeds. Where skilled labour is employed in the garden, of course this source of danger is reduced to a minimum.

Onosma taurica has been compared to *Erica Cavendishi*, whereas I find by actual comparison that it is, as I think, the prettier of the two. The *Onosma* has a tendency to "go off" quite suddenly, and one reason for this is the profusion with which its flowers are produced. The plant actually seems to give up all its strength in the blooming stage. So convinced am I that this is the cause of its sudden departure on dry soils that I am cutting off all the flower-spikes as fast as they appear, and now I see the plant is breaking quite freely from the old root-stock.

The old purple shot flowers of the Byzantine *Gladiolus* are well known in most good gardens, but here in Dublin the plant is actually a weed. It comes up in the gravel walks, and peers forth from nearly every cottage garden fence, and where the borders are dug regularly every year it seems to have an instinctive liking for the shelter of Box edgings or the base of Hollies and other shrubs, from which its flowers peep out at the sun. Not so well known, but even more beautiful is *G. Colvillei albus*, popularly known as The Bride, a pure white kind now coming into bloom. When seen well grown, it is a most charming flower, graceful and bright as St. Bruno's Lily, and hardy as a Thistle. We find it does best when treated like *Belladonna* Lilies, planted at the foot of a sunny greenhouse wall, well planted in good rich loam, and then let alone. As a delicate white blossom for tall vases it is now most welcome.

The blaze of the Oriental Poppies is now at its best. They are easily raised from seeds sown as soon as ripe, and they flower the second year. They are so robust in habit, that they may well be planted in outlying beds as borders, or on the fringe of a shrub belt—a position in which their flowers light up the greenery in a most effective way. As seen in the sunshine, they are most brilliant, and their gorgeous scarlet petals fluttering in the breeze remind one of some rare tropical blossoms rather than those of a thoroughly hardy flower which does not even resent hard usage. For associating with the tall spires of white Foxgloves for middle distance, or even distant views, these Poppies in variety are most useful.

As a dwarf plant for rockwork, or even for a dry border, I can thoroughly recommend *Linaria pallida*, which forms a dense carpet of slightly hairy leaves, studded over with small pale purple Snapdragon-like flowers. The plant in habit is not unlike the hairy variety of *Toadflax* (*L. cymbalaria*), but the flowers are much larger, and altogether the plant is so distinct, clean in its habit of growth, and so effective, that it well deserves a place. F. W. B.

Bedding Plants.—Writers to THE GARDEN have so long and persistently condemned carpet and other forms of geometrical gardening, that it is not surprising to find many of its readers trying to get out of the old chains and fetters that have bound some of them up for so many years. I am pleased to be able to say that my employer loves flowers for their own sake; I mean he derives more pleasure from watching plants develop themselves in his own herbaceous border than anything else on the place, with the exception of Roses and Carnations, of which he is passionately fond. I dare not, if I wanted put any, of the ordinary bedding plants in his garden on any consideration; and although there are thousands of bedding plants used, I greatly question if he ever takes the least notice of them. They are put out merely for the pleasure of the public; for as Grimsby cannot boast of a park yet, he has thrown the Abbey grounds open to the people, once a week during the summer months, for the last 7 or 8 years. There are 8 small beds, with a large one in the centre, all of which are cut in the Grass on rising ground; there also I must not put any *Pelargoniums* or *Calceolarias*. This year I have filled them with what are termed paltry things by some gardeners, but, for all that, I have not the

least doubt about their pleasing my employer. The centre bed contains single *Petunias*; two round beds, *Phlox Drummondii*; two oblong beds, seedling *Verbenas*; two round ones, *Lobelia*; and the other two Indian Pink.—ROBERT MCINTOSH, *The Abbey Gardens, Great Grimsby.*

NOTES OF THE WEEK.

The Pyrenean Lily Wild.—Mrs. R. Gwynne Lawrence sends from Llanarthney, Carmarthenshire, the Pyrenean Lily, which she has found growing wild in some rough Grass in the grounds of a house which has not been inhabited for 16 years. The Lilies were certainly never planed in that spot, but she hears there were some in the flower beds many years ago, and they may have been thrown away there. It is a sheltered place, and there are many trees near. It simply proves that some Lilies are easily naturalised, and this kind is found here and there in that state in England. It is a graceful plant, but the odour is rather strong and disagreeable, too much so to be used indoors.

The Large Everlasting Pea.—So many lovely flowers come in this week including the queen of flowers herself (for *Gloire de Dijon* is a whole garden of flowers on many houses), that we have scarcely room to enumerate them all. Among these must not be forgotten the large-flowered Everlasting Pea (*Lathyrus grandiflorus*). It is now profusely in bloom. We should like to see varieties raised of this plant; the common Everlasting Pea varies a good deal, and Mr. Parker and others have secured some handsome forms, but the above is usually seen in the ordinary form.

The Edelweiss in England.—We have been much struck with the beauty of the Edelweiss in the gardens at Munstead. The paragraphs which go the round of the papers about this plant are needlessly sensational to those who know it, as it is a plant of easy growth in our gardens, and by no means so difficult to find abroad as one might imagine. At Munstead it is growing on a dry bank on the top of a low rough stone wall, so that its singular beauty is brought near the eye, and in warm sandy soil so placed that the splashes of earth cannot disfigure it. It grows free and bold, and is singularly good in effect at all hours of the day, and is even effective at nightfall. A group of it well placed among the ordinary green inhabitants of the rock garden will prove charming.

Queen's Crowns (*Viburnum Opulus*).—This native tree is very beautiful just now, especially in watering-places and by the sides of streams. We suppose it is this habit which gives it the local name of "Queen's Crowns" we have lately heard applied to it. A friend of ours who lately enquired for it at a large tree and shrub nursery could not get any plants of it—we mean, of course, the single form of the Guelder Rose. It is also sometimes called the Water Elder.

The Double French Rocket.—Miss Owen sends us from Ireland a tall specimen of the double Rocket, with a spike very long—13 in. She is puzzled by thus finding it so distinct from the old double white Rocket. We believe it to be the double French. It is a handsome plant, the flowers of which have a slight pinky shade. A few words on all the double forms of *Hesperis matronalis* from those who grow them would be welcome. Our northern friends are said to have a good knowledge of them.

The Large Iceland Poppy.—The finest orange-yellow Poppy seen is a variety of the Iceland Poppy (*P. nudicaule*) in the gardens at Munstead. The type, which is well known, is a beautiful plant, and this large form, possessing as it does a fine golden yellow colour, and the usual delicate crimping of the flowers, deserves to be perpetuated. It is larger than a French Poppy, and by far the finest thing in the way of yellow Poppies we have ever seen.

Some Plants from Ormskirk.—Mr. T. Williams sends us *Sempervivum barbatulum*, not quite hardy, but, treated as *Echeverias* and wintered as such, very charming for rockwork, and lasting a long time in flower; also *Alyssum Wiersbeckii*, a half-shrubby plant of good habit, and bearing many yellow flowers; *Cypripedium candidum*, quite hardy; and *Chrysobactron Hookeri*, thought much of, but overrated as a garden plant.

Gold and Silver Hardy Heaths.—Miss Owen sends us from Gorey gold and silver Heaths, which could be best judged of if one could see the plants, but the golden one seems a very likely plant indeed to produce a distinct and pretty effect, as the gold is not a variegation, therefore more likely to be the produce of a good strong plant.

The Golden Drop.—Among various interesting plants sent us from his Devon garden by Mr. T. H. Archer-Hind is a single shoot of *Onosma taurica*, bearing seven side spikes of those handsome yellow flowers which justify the above English name. It is a capital plant for a dry border or rock garden in good soil.

A very Early Cherry (Noire Précoce de Strass).—At Chiswick a very interesting Cherry is now ripe, and has been so for the past six days. It has a good and delicate flavour, is somewhat small, but distinctly earlier than any of our old early Cherries, and a great gain as an early fruit. An early year and an early garden would see this fruit ripe very early in June, on a wall in the open air.

Clematis montana.—Mr. Fuller informs us that this well known climber is now in full bloom on the White Hart Hotel, Sonning, Berks, one side of which is nearly covered with it. Such a lovely wall plant as this should be planted even more extensively than it is, for it is perfectly hardy, is not at all fastidious as to soil, and seldom fails to produce a plentiful crop of bloom.

Rosa polyantha.—This is one of the prettiest of the single Roses, and one that is not nearly so much grown as it should be for it is invaluable for cutting purposes, the flowers being produced in profusion all along the slender branches. The flowers are small, but sweetly pretty, being pure white with a golden eye and delicately scented. There is a large bush of it in the Coombe Wood Nursery, Kingston Hill, a huge rounded mass from which the slender branches run outwards 3 ft. or more loaded with spikes of flowers; later on the plant will be quite a sheet of white flowers.

Narrow-leaved Spindle Tree (*Euonymus angustifolius*).—Though not particular showy, this shrub is charmingly graceful and pleasing on account of the long slender wreaths of tiny red flowers which occupy fully one-third of branches 4 ft. or 5 ft. in length. As its name implies, the leaves are very narrow, narrower than those of any other cultivated kind except it be *E. americanus nanus*, which has not only narrow leaves, but strikingly resembles *E. angustifolius* in other respects. We never saw the latter finer than in Mr. Stevens's collection at Grasmere, Byfleet, where there are several fine specimens of it now attractive on account of its feathery flower branches. At Kew there is a plant against one of the walls of the herbaceous ground, which is evidently the same, though named *E. nanus*, and in the arboretum at the same place the two kinds are side by side and may be readily distinguished.

Tuberous Begonias Hardy.—Mr. Rodwell, writing to us from the Royal Vineyard Nursery, Wood Lane, Isleworth, states that some plants of tuberous Begonias in beds, which have only been covered during the winter with about 3 in. of Cocoa fibre, have produced growth, indicating that the roots were uninjured during the late severe winter, though the thermometer in the nursery registered 1° below zero. This circumstance is very interesting, showing as it does that tuberous Begonias are hardier than is generally supposed.

Fremontia californica.—This extremely handsome shrub is just now one of the most beautiful plants in flower at the Coombe Wood Nursery, Kingston Hill, where it is planted against a wall of one of the houses. The whole plant, a good sized one, is entirely covered with large, bright, golden flowers, and these intermingled with the deep green foliage are a charming sight. Unlike most plants that one sees, this bears long slender shoots that are perfect wreaths of flower and foliage. Apparently the plants of it here have been unscathed this year, though in several gardens about London it has been badly injured. We are pleased to see that Messrs. Veitch have found a method of propagating in quantity this by far too rare shrub.

Dwarf Rhododendrons.—Some of the dwarf Rhododendrons are now, in common with their larger growing congeners, beautifully in flower, and for an edging to the others, or where small growing kinds are desirable, these dwarf species are very suitable. Among them may be mentioned *R. ferrugineum* and its white variety, and *R. hirsutum*, both neat little shrubs about 1 ft. in height, and not only flowering freely, but continuing in bloom a long time. One called *myrtifolium* is now particularly bright in the Coombe Wood Nursery, with deep rosy flowers, and another, *R. fragrans*, though not of such a pleasing colour, is desirable on account of its deliciously sweet-scented blossoms, which are of a pale lilac-purple tint. It is of dwarf growth, and is a very free flowerer.

Magnolia fuscata.—Among plants in flower in the temperate house at Kew is a bush of this *Magnolia*, the delicious fragrance of which is perceptible throughout the southern end of the structure, where, planted in one of the beds, it thrives well and flowers profusely every season. Its blooms are insignificant compared with those of many of its congeners, but in fragrance it surpasses them all. It is a native of China and is nearly hardy, therefore a cool conservatory is just suited to its requirements.

Seedling Tropæolum.—A remarkably fine seedling *Tropæolum* has been sent us by Mr. D. Inglis, Howick Hall, Lesbury. It has a twining habit of growth, and has unusually dark foliage, and fine flowers of the most brilliant vermilion-scarlet. It is an excel-

lent kind, and one that deserves to be widely distributed. It has been raised at Howick Hall, and is grown in the conservatory. In the open air the leaves are said to be almost black. It is invaluable in any position.

Pratia angulata.—This is a very pretty little New Zealand plant of alpine growth, and perfectly hardy in the neighbourhood of London. The stems are very slender, furnished with tiny rounded leaves, and being of rapid growth soon form a dense cushion-like mass, which for several weeks in early summer is densely studded with pure white blossoms in size and form much resembling those of the ordinary bedding *Lobelias*. Another beautiful phase in its existence is the small fleshy berries of a deep rosy-pink similar to those of *Fuchsia procumbens*; these appear late in summer and remain of the plant for a long time. It has recently been introduced by Messrs. Veitch, in whose nursery at Coombe Wood there are some remarkably fine plants, one 1 ft. or more in diameter. It is also known as *Lobelia littoralis*, but it differs from the *Lobelias* in having fleshy fruits. According to the "New Zealand Flora," it is found abundantly in Lord Auckland's Group, growing in watery places, moist banks, &c., ascending the Southern Alps to 5000 ft. elevation. It requires in cultivation a fully exposed position, but must especially during summer be kept tolerably moist.

Scilla amethystina.—Are not Mrs. Davidson's *Amethyst Scillas*, lately noticed in THE GARDEN, *Hyacinthus amethystinus*? This does duty often in catalogues as *Scilla amethystina*. I enclose you flowers of what I believe to be *Scilla amethystina*; they are rather past their best, but enough remains for you to judge by. It is a pretty little plant which I do not think is common, and flowers long after its congeners.—J. G. NELSON, Aldborough. [Mr. Nelson's flowers are those of *Scilla amethystina*, a very interesting plant, but not so handsome as *Hyacinthus amethystinus*, which is what Mrs. Davidson sent.]

A New Pansy.—Mr. T. E. Whiting sends us from The Vale, Hampstead, a very singular Pansy, velvet brown, but marbled and striped in an indefinite kind of way that reminds one strikingly of some of the new wares used for vases, &c., of the best class. It seems a very beautiful flower, and we have recommended Mr. Whiting to increase it.

Irises Dying off.—In the Chiswick garden, where more hardy plants are now grown than formerly, we observed that a good number of Irises had died off during the past year. Whether this is owing to the severity of the cold or to other causes it would be interesting to know. It is rather unusual to see this plant dying off in quantity and in various positions.

The Bush Meadow Sweets.—Still these pretty bushes go on flowering, and perhaps the later ones are among the more interesting. Among those which Mr. Stevens kindly sends us this week are *Spirea opulifolia* and *S. Van Houttei*; with these also come the yellowish-leaved form of *S. opulifolia*, which he describes as an effective bush.

Frost in June.—On the morning of the 9th we registered 4° of frost in a sheltered situation 3 ft. from the ground. Scarlet Runners, Potato tops, Strawberries, Salvias, Dahlias, and Zinnias much injured. Apples, Pears, and Plums in this locality, much cut by the sharp frost we had in May, are a light crop. In low situations they are a complete failure.—W. C., Ledbury.

Tom Thumb Pinks.—The accompanying are blooms of a new *Dianthus hybridus*, which I propose naming Tom Thumb. It is perfectly hardy, very dwarf, growing about 10 in., very free; clumps large and massive and most attractive.—THOS. WARE, Tottenham. [A neat dwarf Pink, deep rose in colour.]

Fine Tomatoes.—Among the Tomatoes with which our market is often supplied it is sometimes difficult to find specimens that are really fresh, and firm, and ripe, as Tomatoes should be. On the other hand, an enormous quantity of rubbish is sent into the market, a good deal of which must necessarily be unwholesome. The finest Tomatoes we have lately seen are those grown by Mr. Gilbert, at Burghley. They are large in size, yet not got into what may be called the monstrous or coarse state, brilliant in colour as the great Oriental Poppy in early June, and having the true flavour of the firm ripe Tomato—that flavour which makes it the king of salads. Many of us are still in the apprenticeship stage as regards Tomatoes, and some do not even care for them, but all who have once acquired the taste for them will sympathise with us in desiring to make their culture perfect in every garden. Given such Tomatoes as these, and a little pure delicate French vinegar, and a little of that oil which people mostly seek in a small shop in the Haymarket, a bit of chopped Chervil and Tarragon, and we have the materials for a salad such as never delighted the palate of a Roman epicure. Others of the numerous salads that have been talked

of and made might well have been connected with a decadence and effeminacy of a nation, but a perfect Tomato salad is ever typical of all that is fresh and innocent and healthy in flavour. It is, indeed, fitted to lead off a new departure in quest of simple healthy food. The cook is not needed the master or mistress of the house should make the Tomato salad, which merely means slicing the noble fruit up, not exactly across, but in a diagonal direction, as this way holds the juice better. It should be made or the finishing touch of the dressing given shortly before being used. It is needless here to speak of the varied and precious uses of the Tomato in cookery, but we may add that the variety grown at Burghley is Bliss's Paragon, a fine American kind grown in good loam in a well-heated span-roofed house.

Yellow Day Lilies (*Hemerocallis*).—These charming hardy flowers are now becoming more generally appreciated than hitherto, not only for the open border, but also for pot culture. We saw the other day some fine plants of *H. flava* in Mr. Peacock's garden at Hammersmith, growing in a greenhouse and bearing a profusion of clear canary-yellow blossoms, which emit a delicious perfume. *H. graminea* is another pretty, though rarer species; it differs from the foregoing in having narrower leaves, in being a dwarfier grower, and in having more spreading flowers. It, too, is excellent for pot culture, and is quite as easy to grow as *H. flava*. A still rarer kind is *H. rutilans*; this and the two others named are attractively in flower in the Grasmere collection at Byfleet. *H. rutilans* is quite distinct from either of the others, the flowers being crowded together on dwarf stalks, and the colour is a deep orange in the inside of the flower, and flushed with a brownish tint on the outside; though not so showy as the yellow kind, it is a pretty and interesting plant.

Flowering Trees.—The Horse Chestnut has been one of the most beautiful of our forest trees this year. The noble flower-spikes backed up with handsome foliage have been most charming. The mountain Ash with its white aromatic blossoms is also a conspicuous tree. Lilacs, too, are blooming most profusely this season, especially the white variety, the snowy blossoms of which have a fine appearance side by side with the scarlet *Pyrus japonica*. The way-sides are now adorned with May, the scent of which on dewy mornings is most refreshing; *Rhododendrons* and *Barberries* are likewise very gay, the bright orange flowers of *B. Darwini* being unusually fine. The Holly too has bloomed abundantly this year, and was well patronised by bees; therefore a plentiful supply of berries may be expected for Christmas decoration.—W. L., *Greenock*.

Sollya parviflora.—This Australian plant is one of the prettiest in flower just now in the temperate house at Kew. Its small round flowers are of the brightest blue imaginable; they are also borne so numerously on the slender branches that the plant is aglow with colour, and the blossoms hang gracefully on hair-like stalks on all sides. It is a plant that should be grown in every greenhouse, and if not procurable, for it is, we believe, somewhat rare, its congener, *S. heterophylla*, forms a good substitute. Both are capital plants for training to pillars or rafters, and are of comparatively easy culture. It is also known as *S. linearis*, but lately it has been changed to *S. parviflora*.

Double White Campanula (*C. persicifolia alba fl.-pl.*).—The value of this hardy flower is only just beginning to be appreciated, and certainly there are few flowers that deserve to be more extensively known. Though pretty as border plants, their chief use is for cutting, a purpose for which the pretty white rosette-like blossoms and the profusion with which they are produced eminently suit them. The plant is perfectly amenable to pot culture, and may be had in flower early in spring if placed in a moderately warm house, where it will continue to flower throughout the summer. A group of plants in flower of this *Campanula* in the Royal Exotic Nursery, Chelsea, is now very attractive, and deservedly much admired.

Saxifraga lantoscana.—One of the best of the numerous family of Saxifragas is this species, one of the encrusted leaved section. The flowers are pure white, and produced in long dense clusters which arch very gracefully. One peculiarity of this species which renders it distinct from most others is the irregular arrangement of the rosette of leaves. It thrives well on a fully exposed rockery. There are now fine masses of it in the rock garden at Grasmere, Byfleet.

Flowers of Hardy Bulbous Plants.—A handful of choice bulbous plant flowers of the week from Mr. Ware's nursery, Tottenham, are very charming. There are some really fine plants among them consisting of the true *Lilium pomponium*, with brilliant scarlet waxy flowers, an early flowering *Martagon*, very desirable, the exquisite little *L. parvum* with bright orange flowers, *Cyclobothra alba* and *C. pulchella*, very pretty Californian plants, *Brodiaea coccinea*, *B. congesta* and variety *alba*, both very good. *Allium acuminatum roseum*, pink, *A. azureum*, deep blue, *A. lacteum*, white, the lovely

purple *Triteleia laxa*, and a fine assortment of *Isias* and *Tritonias* in various colours.

Camellias at Exeter.—Our large Camellia house has produced a larger supply of bloom this season than on any former occasion. We began cutting in October, and yesterday we were able to find a few good red blooms. It has one pair of 4-in. pipes on each side, but excepting when the buds are swelling, and in very severe weather, we do not light the fire. I may add that we have a very fine plant of the Duke of Devonshire Camellia, which has been growing out-of-doors for many years; it is quite a bush and is against a wall. It has bloomed freely this season, and some blooms are still left on it.—WM. ROBT. WOODMAN, *Exeter Nursery*.

Black Prince Strawberry.—Mr. Muir, Margam Park, Glamorganshire, sends us excellent fruit of this well known early kind. He says, "It is a great favourite, earliness being a strong point in its favour. Here it is always ripe a fortnight or more before any other sort. This year we have gathered it from the open ground since May 24, and from that date the same patch will supply fruit for at least a month. The fruit sent is a fair sample of its general character, and anyone who can gather such by the third week in May or so would certainly, I think, have nothing but praise to bestow on it."

Phlox ovata.—This handsome rock Phlox is very handsome on the rock garden at Chiswick just now, a fine cheery rose, growing from 10 in. to 15 in. high, and full of flowers. It is a capital dwarf border or rock plant.

Scilla peruviana.—This fine old bulbous plant is now beautiful in gardens about London, both the white and the ordinary blue forms, the last the best. Both are, however, desirable for the sake of variety. A group of this is well worth having in choice borders or rough parts of the rock garden.

Eremurus caucasicus.—From Mr. T. H. Archer-Hind we have a specimen of this plant—one of a stout race of *Asphodelus*-like things, somewhat talked of during recent years. Few of the plants have any merit for gardens, and this is no exception.

New Park for Wolverhampton.—This park having been now some time completed, it was resolved to open it on Monday, the 6th inst., a ceremony which was performed by the Mayor amidst a great concourse of spectators. Large spaces have been set apart in it for cricket, volunteer drill ground, archery, and a large bowling green, &c. Ornamental lakes, from 8 acres to 10 acres in extent, have also been formed, on which there is room for boating. One of the principal features is a rock garden, in which upwards of 1000 alpinas and rock plants have been planted, to which are added upwards of 2000 choice hardy Ferns. In the centre of this rock garden is an ornamental pond, filled with a variety of aquatics, and in the moister places may be seen large clumps of *Osmunda regalis*. Nearly 32,000 plants, trees, and shrubs have been planted in the park, and of these some 8000 or 9000 consist of herbaceous and rock plants.—J

Royal Botanical Gardens, Manchester.—The great show held in these gardens the other day, and of which we gave a report last week, was visited by 44,000 persons, the result being a profit to the Society of £700.

THE Evening Fête at the Royal Botanic Gardens, Regent's Park, will take place on Wednesday next. The usual prizes offered for floral and dinner-table decorations, groups of plants, bouquets, &c., will be competed for, and the display promises to be even finer than that on preceding occasions.

American Plants at The Rookery, Bromley Common

—The American garden here has been aglow for several weeks past with *Rhododendrons* and *Ghent Azaleas*. This was, I believe, one of the first American gardens in England, and beds containing all the new varieties have since been formed. Some of the oldest *Azaleas* have been cut down several times, and now they stand from 12 ft. to 14 ft. high. A good many of the oldest *Rhododendrons* are single specimens, some of them being very large. The *Azalea* beds have been planted in such a way as to cause the different colours to blend well together, and some of the smaller beds consist of one distinct colour. We have some fine specimens of *Rhododendron ponticum* growing by the side of the lake, averaging from 14 ft. to 18 ft. in height and as much through; they are literally covered just now with blooms fully open, and when viewed from the top of the park the effect is grand in the extreme. We have in the grounds here some fine trees of different sorts, and I believe we have one of the oldest Vines of the Muscat of Alexandria in the country; it fills a large Vinery. It has been in bearing for 133 years, and at the present time is finishing off a fine crop of Grapes.—WM. CHRISTISON.

TREES, SHRUBS, AND WOODLANDS.

HORSE CHESTNUTS OR BUCKEYES.

OF the varieties of the common Horse Chestnut (*Æsculus Hippocastanum*), which now number nearly a score, there are none finer



Double-flowered Horse Chestnut.

than the double-flowered variety, now becoming better known in this country than hitherto, though it has been in cultivation for a long time. It will, however, be many years before we can expect it to form such a conspicuous object in our English landscapes as the typical kind. The chief merit of this double variety is that the flowers remain longer in a perfect state than those of the single kinds, and they are also more effective, as the spikes are denser. The accompanying woodcut, prepared from plants in Messrs. Ellwanger and Barry's nursery, at Rochester, New York, shows the style of flowering, though the blossoms are rather more formal and crowded than those which we have seen produced in this country. It is, however, a very fine variety, and we hope soon to see it extensively planted in our gardens and parks.

Of other varieties of the Horse Chestnut we lately saw several in the Grasmere collection, Byfleet, and among them the variegated-leaved form, an extremely effective tree, the variegation consisting, as it does, of pure white and deep green; the tree, moreover, seems to be a more robust grower than most variegated plants. Other forms represented there are *dissecta*, *laciniata*, and *pendula nana*, all desirable trees, the two former having elegantly cut foliage. The other species of *Æsculus* in cultivation are *rubicunda*, *carnea*,

glabra, *chinensis*, and *flava*, all of which are more or less known in this country, though not so much as their merits entitle them to be. Of *Æ. rubicunda*, one of the finest deciduous trees we have, there are some ten varieties, including a white-flowered and a purple-flowered kind; the others differ either in habit of growth or foliage. When well grown, the Ohio Buckeye (*Æ. glabra*) is a fine tree, though it is not so vigorous as *rubicunda*, and the flowers are a greenish-yellow, and therefore not so showy. *Æ. pallida* is merely a variety of *glabra*, and closely resembles it.

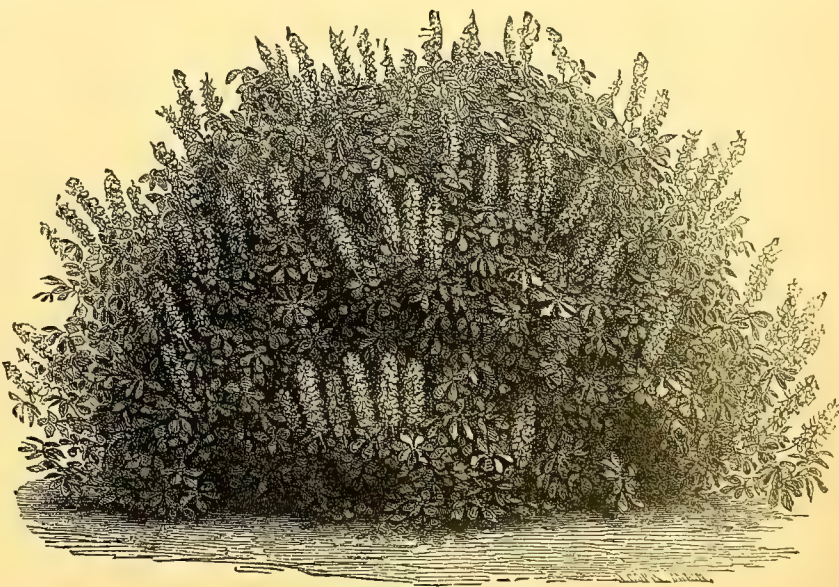
The Pavia, though classed with the species of *Æsculus*, may be readily recognised by their habit of growth and foliage, and particularly by their fruits, which are smooth instead of being covered, like the Horse Chestnut, with prickles when young. The finest of the cultivated kinds is undoubtedly *P. macrostachya*, which is also known as *Æ. parviflora* or *Macrothyrsus discolor*. It grows from 5 ft. to 10 ft. high; the shoots are slender and procumbent, and readily take root when they come in contact with soil; the roots are also stoloniferous. It often forms a large spreading mass similar to that represented in the annexed illustration. The flowers, which are very white, are ornamental and agreeably scented; they are produced in long feathery spikes, which when numerous give the tree a highly attractive appearance. It is a native of North America, from which most of the other species (some fifteen in number) come. Among these the most desirable are *P. rubra* or *Michauxi*, a kind with flowers of a brownish-scarlet, sent to us the other day from the Cambridge Botanic Garden; *P. flava*, with yellow flowers; *P. Lyoni*, discolor, and *humilis*, which only grow some 5 ft. high; *hybrida*, the flowers of which are variegated with yellow, white, and purple, and intermediate between *P. rubra* and *P. flava*. All these are quite hardy, and grow freely in almost any soil, though most rapidly in a good deep loam. They may be readily increased by seeds, which are sometimes produced freely, and some may also be propagated by layers and cuttings.

W. G.

THE CALIFORNIAN BUCKEYE.

(*PAVIA CALIFORNICA*.)

THIS scarce variety has stood the test of last winter's severity without sustaining, apparently, the slightest harm. We have a healthy, thriving young specimen of it growing in the nursery, but as yet it has produced no flowers. Has any reader of THE GARDEN known it to prosper and flower well in England? *Macrostachya* is the sweetest, the prettiest, and best of the Pavias; its long slender flower-spikes, covered with fringe-like stamens, are borne in profusion, but, fortunately, are not developed until after the numerous other *Æsculus*es and Pavias have done blooming; indeed, there are but few trees or shrubs that bloom at the same



Large-spiked Buckeye (*Pavia macrostachya*).

time, and which continue so long in flower. It is generally at its best in July, but may often be seen displaying its flowers through the month of August. It is seen to the best advantage when grown in bush form, situated on a grassy spot, and in a deep, open, damp soil it delights to revel, where it will throw up numerous suckers, and if allowed plenty of room will, in a short time, develop into a wide-spreading ornamental bush, and a fit companion to the choicest tree or shrub for the adornment of a lawn or pleasure ground. Some seven or eight years ago I bought of the late Mr. G. Wheeler (who had a fine old specimen in his nursery, and was very proud to point it out when in flower to visitors) about a dozen or more plants from 4 ft. to 6 ft. high, very leggy and weedy looking, with their small heads bearing a few straggling flowers. They were grown on in this state for a year or two, but as they showed such a tendency to throw up many shoots from the roots (to the impoverishment of the stem, head, and flowers), I resolved to cut them all down to the ground; the result now is that every plant has grown into a strong, vigorous stool, full of young wood. I hope, next planting season, to put them all out into the ornamental woods in one mass, and when the plants become established I anticipate the sight of them, when in full blossom, will be a gratification long looked for, and not to be easily forgotten.

GEORGE BERRY.

Jamesia americana.—This pretty white-flowered deciduous shrub is now beautifully in bloom in our private nursery. It is about from 3 ft. to 4 ft. high, and as much through. I have had it several years, having grown it on from a very small plant. I can therefore vouch for its perfect hardiness; and, moreover, it stood last winter's biting frosts unscathed. The flowers are neat, small, and star-like; I should think they are almost good enough for bouquet making; the leaves, however, are coarse and soft. I am led to believe that this shrub is somewhat uncommon, for out of 11 different tree and shrub catalogues before me only one quotes it.—G. B.

The Snowdrop Tree (*Halesia tetraptera*).—I am not favourably impressed with the habit and growth of this dwarf tree; its leaves, too, are of no decided colour, but a mixture of green and mealy hues. I have grown a few plants of it for several years, but they progress very slowly towards forming trees, requiring the knife constantly to keep them somewhat shapely. Doubtless they would be rendered more attractive when in flower; but my plants have not shown any signs of blooming yet, neither have I ever seen a tree of this in flower. I believe specimens of it are very scarce, at least in this country.—G. B.

Paulownia imperialis.—I have no doubt but the large specimen of this tree at Linton Park is very attractive, and I much wonder that this fine growing tree is not more extensively planted. It is so distinct from anything in the way of tree life that we possess, that an effort should be made to introduce it more frequently into our garden scenery. The flowers individually are beautiful, almost rivalling those of the *Gloxinia*, whilst in the case of a large healthy tree they produce in the mass a truly fine effect. So far as hardiness goes, I should suppose the *Paulownia* to be as hardy as most things, for it withstands the winter in the south of Germany without injury, and is there much planted and highly valued, but I think that it requires a well drained soil and full exposure to the sun in summer.—J. CORNHILL.

Fine Fern-leaved Beech at Liverpool.—Mr. Tinne, of Liverpool, sends us a photograph showing a fine specimen of this tree measuring in height, 36 ft.; spread of branches, 40 ft. 9 in.; girth at base, 8 ft. 3 in.; girth 27 in. up, 4 ft. 8 in.; girth 4 ft. up, 4 ft. 9 in. to the spring of the branches.

The East Wind.—In *THE GARDEN* (p. 515) a writer accuses me of rediscovering the old Potato curl at Chiswick, whereas I had nothing whatever to do with the discovery or rediscovery. Other writers discovered it, whilst I really knocked the "bogus" discovery completely on the head. The same correspondent then makes the surprising statement that I mistook the curl for "a new and unheard-of disease," whilst the simple truth is that as soon as I had examined the curl I pronounced it to be no other than a form of the common Potato disease. The writer in question goes on to say that I published my erroneous determination "far and wide," whereas I never published one word in any place about the curl being new. It is then said that ordinary cultivators at length put me in the right path, whereas cultivators both ordinary and extraordinary never connected me in any way with the curl till your correspondent made

these incorrect statements. He concludes by saying that amongst other vile things I once painted a Rose "about the size of a Cauliflower." If I ever did so, it was to satisfy some "cultivator," and certainly not to satisfy myself. I might have painted that Rose, but I do not think the bloom was quite so large as stated. Let us have the truth.—W. G. SMITH, 125, Grosvenor Road, Highbury.

[The east wind having now ceased, we hope for an era of concord, and here wish this discussion to cease.]

THE ROSE GARDEN.

BURYING ROSE STOCKS FOR THE WINTER.

HAVE any readers of *THE GARDEN* tried this and with what results? An amateur enthusiast looking over our Briers the other day, and pointing out how the frost had bitten them into dormancy and shootlessness, said, Why do you not bury your Briers for the winter, Mr. Fish? Well, here was a poser; it had never occurred to me. Did it answer? He assured me it did. The finest lot of Briers he had ever seen—and he saw most Rose fêtes, such as the Roses at the two Palaces, Kensington, Regent's Park, &c.; in fact, his calling was to collect dates about all the coming Rose events of the year—had lain in the ground top and root from November to February. They came out fresh and moist, the roots all starting, the stems fresh and sound, the buds plump nigh unto breaking. They took to the soil at once, and the breaks were regular and vigorous. I intend to try it next year with a portion of our Briers. Certainly our Briers have been hard hit by the winter. They were collected and planted in good time, but not one in three will be fit to bud. My enthusiastic teacher clinched his advice to bury by triumphantly asking how it could be otherwise with these poor Briers. Torn out of sunny banks and sheltered hedgerows, and set out in the open, the frost bites them right through. Burying would prevent all that. But what about the resurrection? February rains would be all right. But March, April, and we must now add May frosts; the latter killed a good many of our Teas this year. They were probably wounded before, but May frosts finished them. Well, of these risks he could say but little, only that the Briers would at least be out of zero's way; and that the Briers were so hardy that our spring frosts would not hurt them much, had they not been deeply injured before. What say your readers to burying their Briers about the time they pit their Potatoes, and planting them again about the same season as the noble tuber. The earthing or mulching up the stems of dwarf Roses answers well. As we cannot earth up our Briers or standards, perhaps it would be well to try laying them down as we do our Broccoli. Certainly nothing can well prove more destructive than our present modes of treating Briers and Roses.

D. T. FISH.

MAGGOT-HUNTING.

THE weaker our Roses the more maggots; perhaps our Rose Canon will explain why. Is it because the destruction of the weakest is but the obverse side of the survival of the fittest? Or is there any correlation between weakness and sweetness? Be all that as it may, it seems almost certain that the harder our Roses are bit by the frost, the more maggots hasten to devour them. As to frost destroying the larvæ of maggots, it seems rather as if it multiplied their numbers a hundred-fold. As to remedies for maggots, there are none to be trusted, but persistent hunting morning, noon, and night, the first and the last being the more likely times to have a good find. Under the leaves in the hearts of the best buds, on the sides of the finer shoots are the places the maggots delight in. The more there are caught the more, and yet the more there appears to come. They are of all sizes and of various colours—green, grey, and golden being the more common; the green are the most numerous and the worst to find. They are so like in colour to the shoots and leaves they feed upon, it needs a sharp eye to find them. But found they must be if any perfect blooms are to be had. Some maggots bore boldly into the buds, and thus completely wreck them. Others seem more fastidious, and take a tasting tour among the finest buds, merely snipping their upper fringes, and so ruining many perfect Roses in a single night. These roving maggots are the worst of all. But every sort, size, and colour must be hunted out and destroyed, and that without mercy, by those who would show Roses, or enjoy perfect flowers at home. A practical difficulty often arises with lady hunters of maggots, which expresses itself in this form. Whatever shall and can we do with them when found? Our answer is so brief and emphatic, that it may sound harsh and even savage to ears polite—"squash" them, either on, within, or among the leaves. If your nerves are too sensitive for such work, you hardly deserve

good Roses. By loving the latter more you will hate the maggots enough to give them a short shrift when found. Maggots, however, may be collected into boxes, baskets, a garden pot or a jar, and carried to the poultry yard, or otherwise disposed of *en masse*. But instantaneous execution on the spot saves time and also suffering. The fate of the maggots must as far as possible be lost sight of in the safety of the Roses. Pursued in this spirit, maggot hunting and killing becomes, if not sport, at least exciting and absorbing employment. However distasteful the taking of even the life of a worm may be, and I quite sympathise with Cowper in the matter, the swift destruction of maggots is a necessity laid on all Rosarians, who would stage their 48's, 36's, 24's, 18's, 12's, 6's, or even a single perfect flower. Leave them to work their ravenous will among your Roses, and the chances are they will not leave a single perfect flower. In hunting for maggots the true lover of Roses will not be blind to the aphides. Brushes and dressings for these are all very well. But this reminds me somewhat of booting the cat to help it to catch mice, as there is no trap or cure for aphides better than the sharp eyes and nimble fingers of a true Rosarian nerved by zeal, perseverance, and love of his flowers. Before these, maggots, aphides, suckers, and a host of other evils vanish as if by magic. D. T.

The Scarcity of Rose Blooms.—Is this merely local or is it general? Perhaps your correspondents will oblige by communicating their experience. Of course we are all aware how many Roses have been crippled and killed. No one expects bloom from these. Our absolute losses alone have caused a dearth of bloom; but the Roses that have escaped injury as far as appearance goes are also thin of buds. Many shoots sufficiently strong to show, as a rule, have no buds on them, and even wood shoots seem less plentiful than usual. Possibly, the past winter may also be credited with the scarcity of bloom. The roots may even have been injured where the tops have escaped. It is a singular fact, and rather favours this view of the matter, that not a few of our Roses seem to have perished from the roots upwards rather than from the tops downwards. Such hardy Roses as the Gloire de Dijon that seemed quite safe a few weeks since are blooming indifferently. The buds appeared to break all right, but hardly had the shoot made a fair start so as to make demands on the roots, than many flowers have opened indifferently and a good many have failed. It is all very provoking, as the many blanks make the scarcity of bloom, on those to the fore the more felt. Not only have shoots that seem strong enough to flower failed to bloom, but a larger proportion than usual of the shoots are too weak to flower. Every effort ought to be made by the use of solid and liquid dressings to strengthen the plants, so that a good autumnal bloom may be reaped.—HARDWICKE.

Mildew on Roses.—In Mr. Stratton's remarks on Californian Roses I notice the statement that the mildew of Roses will speedily overspread other trees. The Apple, Locust, Blue Gum, Poplar, and Maple are specifically named as being thus infected from Roses. This hardly accords with our experience. Terribly destructive as is the pest of mildew, we have found a check for its ravages in the fact that it differs so much in character and quality as to mostly confine itself to the species of tree or plant it attacks. The Rose mildew, for example, does not attack the Vine, or *vice versa*, and my experience is that neither will it attack the Apple or other trees. The effects of different stocks on mildew is a most important practical point that I do not remember seeing discussed before. It seems Mr. Stratton has all new Roses on three stocks—the Manetti, Castilian, and Eglantine. The latter, I presume, is our common Brier or Dog Rose; but what is the Castilian? and can it be had in quantity in this country? The idea of working mildew out of the blood by means of an anti-mildew stock is capital, and it seems to prove more or less successful in California. Has it succeeded with Géant des Batailles—perhaps the most inveterate mildewer in the whole family? I wish the proportions of carbolic acid and blue stone had been given; they are powerful remedies, and a "weak solution" is too vague to be safe. The whole paper is most interesting, and the writer has marvellous faith in the power of the stocks over the scions as well as the soil—the Manetti for wet, the Castilian for dry soils. In these two stocks we have most valuable aids. These enable us to impart vigour to the plants, check the production of suckers, and cure mildew. In all this we seem to have a good deal to learn from our Californian florists, and I for one will only be too glad to read more of such papers from Mr. Stratton's pen as shall tend to increase our power over the Rose, ensure its greater safety, or enhance its beauty.—D. T. FISH.

Malt Dust for Roses.—Canon Hole's recommendation of this for Roses was the first time I had ever heard of its being so applied, but I think I can assist "C. Y." (p. 573) in determining what to obtain. It was strongly commended to me for root crops, and

was described as "the sweepings of the flues under malt kiln plates," so that I take it to be that described by "C. Y.'s" brewery friend. I have not tried it on Roses, but intend doing so when again potting on; having, however, done so on root crops, mixed with burnt garden refuse, I can say that I have never had more vigorous, healthy, and promising crops. I applied it to Potatoes (putting a handful under each set), Onions (putting it in before drilling), and a layer to the Asparagus beds, and the result so far has been most satisfactory. It caused a little trouble in weeding out the growth of Barley, which proves "C. Y.'s" friend to be right in describing it as in part the rootlets, but they were easily and quickly removed. Perhaps some of our Rosarians will tell us as to the proportion of dust to be mixed with the potting compost for Roses. By-the-by, I do not think it well to be applied with manure water, as the dust will remain on the top of the earth and so remain valueless, but in the absence of specific directions I should add about one part to twelve or fourteen of loam, well-rotted manure, and crushed bones, &c.—C. O.

—There can be no doubt that malt dust is a strong manure. I found it to be so when applied to the Potato. The growth of the haulm was remarkable, and the leafage of the deepest and glossiest green. It was not so useful in producing tubers as haulm, as its chief constituent is nitrogen, whilst to form tubers the most essential constituents are phosphates. But for pot plants, where foliage is wanted, and for Roses, I should think it would prove a first-class manure mixed with the soil when the plants are potted. If used as a surface dressing it becomes clogged and mouldy. This dust is really not dust; it is the germ put forth by the Barley when induced to make premature growth in the process of malting. When the Corn is subjected to heat, and dried after it has made growth, these germs wither and are rubbed off, and are of no service except as manure. In the process of sprouting, the chief or starchy constituent of the Corn is eliminated, leaving the sugar or saccharine matter predominant. Thus these germs contain the most nutritive element of the Corn, and furnish to other plants good stores of nitrogen.—A. D.

—Kiln dust is accumulated by the malt dust which falls through the kiln tiles, and is exposed through the whole malting season to fierce heat. It is removed at the end of the malting season, and is such a powerful agent, that if used *per se* great caution is necessary. But prepared as Mr. Rivers directed (and he was the originator), it is a wonderful fertiliser, and may be used safely to Roses, Vines, or other plants of that kind. I have large malt houses, and so have both components at hand. I mix a large heap every year, and so vigorous is the growth of the Roses, that I never get even a fly on them. It will probably be a favour to get the kiln dust, and a fee is, I fear, imperative. Now for directions: three full barrows of fresh horse droppings (corn-fed horses) must be gathered without straw, tossed down in a heap and the pieces beaten apart with a prong. Then an equal quantity (two sacks perhaps) of the kiln dust must be added and the mass incorporated by two or three turnings. A little water may be sprinkled when the last turning is effected. By the second turning the heat will be fierce and the smell intolerable. It must be turned every second day three times, and then is fit for use, and if not immediately required must be spread thinly, as if left compact, the escape of ammonia would be rapid. I should have said spread thinly in a covered shed. I dress my whole orchard house with it every year, and so rapid is the growth of the trees that we don't get a visit even from the green-fly.—J. M. STRIDE.

Rosa rugosa.—This Rose was the first in leaf and it is the first in flower (June 1). Neither the cold winter, east winds, rain, or drought seem to affect it in the least; and it appears equally proof against insect pests. One large bush on our rockery is crowded with buds, and will have from ten to twenty blooms daily for a long time to come. Last autumn it ripened its seed perfectly, and was very pretty with its large red globose fruit. I do not know any Rose which continues to flower so constantly throughout the summer. BROCKHURST, *Didsbury*.

Pugilistic Toads (p. 538).—For Dr. Paterson's information I may state that one day, while gathering Violets out-of-doors early in spring, I came suddenly upon a large toad squatted in the middle of the plants. Till Shakespeare taught me better, I always thought toads horrid creatures, and almost shuddered when they came across my path; however, observing and admiring the jewelled eye as bravely as I could, I selected one of the largest leaves with a long foot-stalk, wishing to drive the creature away, when, to my great astonishment, it regularly sprang at me, leaping upwards towards my hand, with mouth wide open, the tongue rapidly jerked out with a slight noise. I was so unprepared for the challenge, that I dropped the leaf, found that I did not want any more Violets, and settled in

my mind that, though so lazy and indolent looking, a toad was, when disturbed ever so little, quite able to hold his own place and show pugnacious manners.—E. A. E. H., *Penfield*.

EFFECTS OF A CYCLONE ON VEGETATION.

WITH all due respect to "F. W. B.'s" knowledge of tropical vegetation, I am obliged to differ from him in the conclusion to which he has come concerning the cyclonic effects referred to in my remarks (p. 22) of your issue for January 1. In the first place, although my experience of the Tropics has only extended over fifteen months, I have seen enough during that time to convince me that some cause, other than "the advent of the rainy season," must be adduced to account for the nothing less than marvellous growth and flowering of trees and shrubs directly after the cyclone of the 18th of August last. We arrived in Jamaica on December 1, 1879, immediately after the memorable floods of that year succeeding the usual dry season, and even to our eyes, unused then to tropical vegetation, the growth did not appear by any means so remarkable as to call forth comment (and the same might be said of the succeeding May season), and "F. W. B." may rest assured that if the case in question had not seemed particularly striking and altogether phenomenal, I should not have alluded to it. But, allowing that there was really nothing more in the effects produced on vegetation in general than the usual impetus to growth given by refreshing showers after a season of drought, how does "F. W. B." account for the very peculiar change in the 50-ft. high *Eucalyptus*, which must have passed through a good many periods of drought as well as seasons of rain in its twelve or fifteen years of life? But never before the hurricane in question did it attempt, even in the feeblest manner, to put out a single shoot to cover its three-parts bare trunk (I may state here that the shoots in question have grown and thriven so rapidly that they may soon worthily bear the designation of branches).

I think the case of the *Erythrina*, too, is somewhat against "F. W. B.'s" theory. Though I cannot even guess at its age, it was abundantly evident, from its scraggy, scrubby, weather-beaten look, that it had passed through the vicissitudes of a good many years; but dry weather or moist, burning sun or refreshing rain, had failed to convert it into anything but an ugly, sickly, comparatively leafless and flowerless eyesore, for until its "shaking up" last August it was really nothing more. No one will attempt to deny the self-evident fact that "all plants are more or less affected by the hot dry wind of the hot season in the Tropics; leaves fall," &c., &c.; or that "in a few days after rains come all this is changed as if by magic," because the same might with equal truth be said of plants, though in a less degree, in and after a hot dry season at home. But these observations hold true only to a very limited extent in a great many districts of "the land of springs." It is well known that Jamaica, considering its small size, is remarkable for the differences of temperature and atmosphere generally that exist in different portions of the island, varying from the hot, dry, and insufferably dusty air of Kingston and the surrounding plains, through gradually increasing degrees of coolness and moisture, up to the positive and unmistakable cold of the Blue Mountain Peak, about 8000 ft. above sea level. But these are not the most curious facts in relation to this, for sometimes it will be found that certain districts, that are identically on the same level, and, it may be, often only a few miles apart, are "wide as the pole's asunder" as regards temperature and atmosphere, and while one is scorched and parched—except just in the short rainy season—by a merciless sun, the other may be cooled and refreshed by fertilising rains all through the year. Under the latter category must be placed Castleton Gardens and their neighbourhood, bearing, as they do, rather a "showery" character at all times. Indeed, we were rather alarmed on being informed shortly after our arrival in Kingston that it invariably rained every day at Castleton; and, though we have not found this to be literally true in our experience of it, the fact remains that we very rarely have a season of drought, and certainly not for longer than a week or two at any time. Our lowest rainfall in one month of last year was 1.81 in., the next 1.92 in.; the other ten months were considerably higher, ranging from 2.92 in. to 25.53 in., the last named occurring in the memorable August (11.39 in. of rain falling during the day and night) of cyclone notoriety, and certainly doing more harm than good. Last month the rain gauge here registered 6.10 in., and this in a supposed dry month, too. As for the "dry monsoon" mentioned by your correspondent, we have no experience of it, a "hot, dry wind" being unknown in this region at any season, and dust, I am happy to say, being conspicuous only by its absence.

Therefore, I think "F. W. B." must concede that, with abundance of rain all through the year, combined with the significant fact that never in our short experience of Castleton has the thermometer registered more than 90°, and even that only about three days in

the hottest season, we must look for the why and the wherefore of our phenomenal growth elsewhere than in the simple and usual action of the rainy season alone.

But if, as "F. W. B." himself allows, the wind does act beneficially upon vegetation, in some cases "by increasing the rooting power," if Turnips "never begin to bulb until after very windy weather," why should not the same principle be considered applicable in the case of Roses and other plants more ornamental, if less useful, than the above mentioned esculent? Is not "F. W. B." a little beside the question, however, when he goes on to show that because the finest timber trees are found not in exposed, but in sheltered positions, therefore the wondrous vigour and beauty shown by our trees and shrubs here cannot be the result of the action of wind? I think he must have to a certain extent misunderstood my meaning. I did not intend to argue for a moment that constant exposure to wind in a bleak situation is beneficial to any plant; on the contrary, I believe it takes an extraordinary hardy tree to stand such a position with benefit either to its vigour or beauty. It must be understood that our garden does not occupy an exposed position, but lies on the slope of a rather deep basin formed by mountain peaks, which in general protect it on all sides from anything but a gentle breeze from the sea. Of course seasons of cyclones are exceptional, for, as "F. W. B." may suppose, a whirlwind has of necessity from the mere fact of its being confined infinitely more power in a basin than on an open plain, where it sweeps on without let or hindrance. What I do contend is, that a thorough shaking up once in a while has a strengthening and re-invigorating effect (of course I must be understood to mean on plants that are strong enough to bear such rough handling without being uprooted and utterly destroyed) simply by inducing increased "root action," to use "F. W. B.'s" own expression.

Another theory is suggested by what I have seen of the beneficial results of the judicious, yet free, pruning of the boughs of stunted plants. By this the energies of the plants were concentrated in a few branches, which under favourable atmospheric conditions pushed freely into fresh and healthy growth. May it not be that something of the same nature occurred to many of the plants here during and after the cyclone, though the results only were visible, because we could not see that any actual loss of limbs or twigs had happened to them? Is it not conceivable that by the bending and straining of the branches during the gale, much of the recently formed tissue would be either violently strained or broken, the result of which would be a diversion of the sap into new channels immediately below the strained or ruptured points? The two kinds of pruning are somewhat similar, but, if anything, the latter ought to be the better of the two, inasmuch as it is undoubtedly more natural and perhaps equally effective.

Dr. Wallace's idea (p. 66) that the mere "exercise" the trees were subjected to during the gale—leaving out of the question altogether any internal strain or rupture—seems reasonable, and the phenomena may be largely due to said "exercise." And what tends to strengthen his view of the matter is the fact that plants of *Dillenia speciosa*, *Colvillea racemosa*, and *Amherstia nobilis*—all natives of a region where cyclones are frequent—though denuded of their leaves, lost not a single twig, and in no instance were uprooted or even thrown from the perpendicular. Evidently, cyclones not only benefit the individual plant, but also, acting it may be for generations, tend to strengthen the race or species. M. SYME.

Castleton Botanic Gardens, Jamaica.

A GARDEN OF IRON.

STEPHENS' GREEN, which, owing to the munificence of a citizen of Dublin, has been thrown open as a public garden or park, has been laid out at considerable cost, and the surface of the original flat square diversified in many ways. There are fountains, rockeries, a lake spanned by a massive stone bridge, a waterfall, shrubberies on artificial mounds, shrubberies on level ground, formal flower beds, &c. A fair collection of deciduous trees and shrubs has been planted in Stephens' Green, though at present, owing to the three severe past winters, they do not look very flourishing. The usual mistake so often made in English town gardens has been followed here, viz., of planting large numbers of evergreens, which even if they have survived the cold winters, are doomed to perish in a few years, or at best to look dismal from the effects of smoke. What appears to me the greatest blemish in Stephens' Green is the quantity and variety of iron fences, reminding one of what was formerly the case and still needs improvement in Hyde Park.

Here, besides the exterior railings enclosing the green, and a strong single bar bounding the side, as in Rotten Row, both indispensable, there are, in some cases, a low-square iron bar, and in others a chain; these are used as edgings to walks, to keep people from walking on the grass, though in some places they are satisfied with

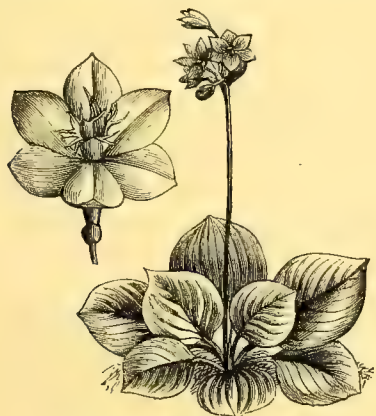
small notice boards requesting them to "Please keep off the grass." Then there are heavy iron tree-guards, strong enough to resist cattle, of which there are none. Some of the shrubberies are surrounded with wire, others with continuous bar-fencing; here and there are spiked railings. Lastly, across the middle of the green extends an upright iron fence, perhaps intended to enclose sheep, though I did not see any there, but nearly high enough for deer. In fact, the iron-founders seem to have been given *carte-blanche* to stick iron-work into every spot where it can catch the eye. It may be said that these barricades are necessary to keep people within bounds, and prevent them from injuring the shrubs, but as convictions have been obtained against this offence, it is manifest that an iron-railing is of no use against the ill-disposed; and as the people's garden, Phoenix Park, seems to flourish without these unsightly safeguards, it is to be hoped they will in time be removed from Stephens' Green.

VIATOR.

THE INDOOR GARDEN.

EURYCLES CUNNINGHAMI.

SOME time ago a coloured plate of *E. australasica* was given in our columns; since then we have frequently met with it in gardens, and often in fine condition, but we have seldom met with Cunningham's species, which is equally beautiful, and quite distinct from either the Brisbane Lily (*E. australasica*), or the Amboyana Lily (*E. amboinensis*). The annexed engraving gives a good idea of the general aspect of the plant; it will be seen that the leaves are longer than broad, and not heart-shaped, as in *E. australasica*. The flower-stems rise about 1 ft. in height, and the white saucer-shaped blossoms are produced in a somewhat crowded cluster. It was discovered by Allan Cunningham, who found it growing in dense and rather moist woods on the banks of the Brisbane River, near Moreton Bay. It may be grown successfully in company with the other species which thrive in a moderately



Eurycles Cunninghami.

warm house, but due regard should be paid as to the periods of active growth and resting.

W. G.

Painting Glasshouses.—Can you give me any information respecting painting stoves, greenhouses, and conservatories? Our village painter has painted them several times in eight years, always giving three coats each time. The woodwork has always been dry when the paint was put on, and about six months afterwards it blisters, and one can pull it off clean from the woodwork. Has the paint been good? or is it badly put on?—S. F.

—If "S. F." had not stated that the wood was dry always when painted, I should have supposed that it had been saturated with moisture, and still think it cannot have been thoroughly dry, but, beyond this, the brittleness of the paint that has peeled off has the appearance of its having been mixed with much too large a proportion of turps instead of oil. If the wood is dry and the paint of proper consistency it will not peel off. In a stove there is sometimes special difficulty on account of the moisture, and we have known a case where two or three coats of "knotting" over the whole previous to painting was found very effectual; this, however, ought not to be necessary if the paint is properly mixed.—M. R.

GARDENIA THUNBERGI.

AMONG the numerous species of Gardenias now cultivated, the old *G. Thunbergi*, introduced a century ago, is still one of the rarest, being scarcely ever met with except in botanical collections, though it is quite as desirable as many others, and the flowers are



Gardenia Thunbergi.

large and white and extremely fragrant. The annexed woodcut will give an idea of the habit of the plant, and also the form of the large blossoms. It grows from 4 ft. to 5 ft. in height, stiff and erect, and bears the flowers solitary on the tips of the branches. It is a native of the island of Manilla, and also the Cape of Good Hope; therefore, it does not require to be grown in such a warm and moist atmosphere as such species as *G. Stanleyana*, which come from intertropical regions. It flowers from January to March, and the blooms remain in good condition for some weeks.

W. G.

GLASSHOUSES.

"PEREGRINE" says that there will still be found some to advocate sunken houses. I think so, too, and I must confess to being one of those who entertain the old-fashioned idea that they are of some practical value. They may not be suitable for some kinds of plants, but I have seen some wonderfully good culture in them, especially in the way of *Dracenas*, small Palms, choice warm house plants, *Camellias*, &c. In certain parts of the Continent, where these plants are grown to great perfection, sunken houses are much in vogue, and in a country where the winters are characterised by great severity and where coals are extremely dear, they are considered the most economical form of glass structure that can be built. As to their being stuffy and fostering mildew, that I consider to be simply a question of, in the first place, providing the ventilation necessary to ensure a complete change of air when requisite, and good management afterwards. I was never more troubled with mildew or pests of any description in houses with sunken paths than when the structure rose well above the level of the soil. At the same time I am willing to believe that the experience of some of your readers may not tally with mine in this matter, and in many instances I think for the reason that houses have been thus constructed without due regard having been paid to the water level. No house should be thus built unless the bottom of the path is at least 1 ft. higher than the general drainage level; and the ground on which the house is built should be itself well drained, otherwise there is in wet weather, just when the structure should be as free from damp as possible, a constant filtration of water towards the side of the path. However much opinions may differ as to the suitability of sunken houses for plant culture, I should have thought that no one would have been found to have questioned their economical value. Surely there can be no doubt that frost and cutting winds can be better excluded from a structure where there are no side or end walls for the exterior air to act upon than where it can freely play upon some 2 ft. to 3 ft. of brickwork. It takes less frost than one might imagine to penetrate $4\frac{1}{2}$ in. brickwork, as may be easily seen in the case of cold frames in anything like severe weather. Let anyone who may be doubtful as to the natural warmth, or rather the cold-resisting power of sunken houses or frames, as compared with those elevated above the ground level, make the experiment of placing some tender plants in a sunken pit and some in an ordinary frame, and cover the glass equally thick in

both cases in severe weather, not sheltering the brickwork in any way. The plants in the sunken frame will hardly be touched by the time those in the walled frame are frozen through and through. I have had considerable experience of cold frames in a severe climate, and know that where they can be sunk below the surface soil, plants may be wintered in them safely, and at but little expense. They should, however, be cemented at the sides, and then they will be as dry and snug as one could wish for, and form capital winter quarters for Camellias, Azaleas, Cinerarias, Heaths, Epacrises, and such like plants.

"Peregrine" appears to consider that sunken houses belong to a by-gone period, and I agree with him that they do not represent the latest improvements in horticulture, but when your correspondent insists upon the necessity of side lights or front ventilators, as the case may be, he himself retrogrades, and finds himself in direct antagonism with many of the most successful growers of the present day. Is not "Peregrine" aware that market growers of the most advanced type are doing away with side ventilation? regarding such as involving unnecessary outlay, and as being in many cases of the two inimical to the welfare of the plants. A great portion of the glass structures erected within the last few years in market gardens have no provision for side ventilation, and in the course of a little while we shall in all probability find that that mode of admitting air to glass structures will be confined to private gardens. Let "Peregrine" go to Swanley and he will there get practical demonstration of how plant culture is carried out under what may be termed the new system of ventilation. Mr. Cannell's houses have no ventilation at the sides whatever; they cannot have, for they are built in one solid block, the spaces between being filled up to the weather board with concrete, so that only just the end brickwork and the roof are exposed to the action of the outside atmosphere. Houses thus built are almost as economically heated as where the path is sunk, and with them one has the advantage of entering them on the level. Having to go down steps into a glasshouse is certainly an impediment to easy culture and occasions loss of time, and this, I think, is one great reason why sunken houses are not more extensively employed than they are.

Returning, however, to the question of ventilation, I would remark that not only have Mr. Cannell's houses no provision for the admission of side air, but they have ventilators on one side of the roof only. The houses face the south, and air is admitted on the north side. I must confess that this part of the affair caused me some surprise, for although within the last few years I have found reason to change my ideas concerning the amount of air to be admitted into glass structures, as well as the manner of admitting it, still, like "Peregrine," I had considered that for some kinds of plants a through current of air was at times indispensable to maintain them in perfect health. Here, however, I saw *Verbenas* (in the specimen stage), *Begonias* (tuberous), *Fuchsias*, zonals, including the sun and air-loving doubles, as robust, sturdy, and as full of handsome bloom as it would be possible to get them, thus affording ample proof that in the case of such plants as these money is ill spent in making provision for admitting air to them from the sides or front of the structure. I wish it, however, to be understood that my remarks apply to span-roofed houses, and more especially to those devoted to plant culture. In the case of lean-to structures, the nature of whose inmates do not admit of shading, there is, of course, at times such an accumulation of solar heat, that the most ample ventilation must be provided to prevent scorching. I shall be pleased if the remarks here made are the means of bringing out the ideas of some of your correspondents upon this subject, for I do not know of anything appertaining to horticulture of greater interest than the construction of glass structures. J. CORNHILL.

Insectivorous Plants.—During the summer of 1878 exhaustive experiments made with the Carolina Fly-trap (*Dionæa muscipula*) showed that the so-called "feeding" of the plants in no way conduced to their health or vigour, being identical in all respects with those that had not been given any insects. Why, because the exudations from a plant are such as to cause an insect to adhere to it, or its mechanical formation entrap the insect, we should jump to the conclusion that it should then feed on its prey, it is hard to imagine. On the Cruel Plant (*Physianthus albens*) hundreds of moths, butterflies, and other insects may be seen any day in August when the plant is in bloom—dead and dying, firmly held by their antennæ. Prof. Thurber thus describes the trap contrivance by which the insect is caught: "The anthers are so placed that their spreading cells form a series of notches, in their ring around the pistil. The insect in putting its proboscis down for the honey must pass it into one of these notches, and in attempting to withdraw it the end is sure to get caught in a notch, boot-jack fashion, as it were, and the

more the insect pulls the more its trunk is caught." Thus caught the insect starves to death, hence the well-deserved name of Cruel Plant. Now, here is a trap as nearly as wonderful as that of the Carolina Fly-trap, and far more so than that of the viscid exudations of the *Silene*; yet even Mr. Darwin would hardly say that the Cruel Plant feeds on these insects any more than that the gnats caught by millions by the resinous exudations of the Hemlock tend to augment growth, or that the Thistle or Burdock of the way-side owe any part of their health and vigour to the scores of butterflies, moths, or bumble bees that are in their headlong flight impaled on their spines.—PETER HENDERSON, in *Scientific America*.

NOTES AND READINGS.

"MORE LIGHT," a writer says, is still the cry with gardeners, and the consequences, as we are told, are that builders put up glasshouses for us that prove very expensive, being constantly in need of repairs. This is an altogether mistaken idea, and the cry of "more light" is without doubt a good one. Glasshouses are not necessarily either slim or expensive, because rafters 9 in. deep by 3 in. in width, and broad sash frames resting between these, not to speak of astragals of proportionate size, closely placed have been discontinued. It is not the weight of timber that makes a house strong, but its quality and preservation. Seasoned wood and paint are the secret of hothouse construction. If these two points be studied there is no excuse whatever for using more timber than will render them stable, and it has been abundantly proved that just about one half of the timber that used to be employed is necessary for that purpose. Well seasoned rafters of red deal 5 in. by 2 in., and stayed by neat and sometimes ornamental iron ties, are now used for all plant structures of modern size by good builders, sashes with their frames being discontinued, and the panes are 1 ft. wide. A house of this kind will with the same care remain serviceable just as long as one containing twice as much wood in it, and will look much better. One frequently hears complaints of plant houses not lasting, but in such cases it will almost invariably be found that painting has been neglected, or that the wood has not been properly seasoned to begin with. The result is that the wood rots and shrinks at the joints and elsewhere, and when that happens the end is not far off. These are matters, however, that people who build houses should see to themselves.

If I were asked what evergreen was most popular and useful I should say the Holly. Nurserymen dispose of immense quantities of the different varieties, and all kinds keep up their price in an astonishing manner. We have no shelter tree like the Holly, whether trained in the form of a hedge or permitted to grow naturally; either way it forms a dense barrier to cold winds and gales, and it grows quickly, but the best and loftiest hedges are those which are not clipped or pruned. As ornamental trees for planting singly on lawns, Hollies quite beat many of the fashionable Conifers, and, unlike these, are not likely to be injured by cold. The broad, shining-leaved Holly called *Shepherdii* makes a magnificent specimen on the lawn, growing in a natural pyramidal form, and spreading out in abundant growth at the base. Unfortunately, it is not a berry bearer. The common Holly, however, meets all our wants in that way, but there are kinds superior to it. The whole of the free-growing varieties make fine symmetrical specimens without the aid of the knife, provided they are grown in the open and in good soil. The broad margined golden and silver kinds of the best type are free growers, attaining a height of 20 ft. or more, and a proportionate breadth, but they are not common in gardens as single specimens. There is rather a disposition to cramp the free growth of the trees by making them into topiary specimens of an extremely artificial shape. Some few years ago I saw a number of the better class of Hollies, gold and silver, that had been planted behind an informal clump of shrubs on a lawn, and for which something like from £5 to £7 a-piece had been paid, treated in this way. Nothing could have presented a more incongruous spectacle—they looked like Toadstools set in a row—but they were from a nursery famous for its "specimen Hollies," and the proprietor had pleased himself in the selection. In planting Hollies in the shrubbery, of whatever kind, the best way is to let them grow as freely as they will, and in a good soil they will grow quickly and well. If formal specimens are desired confine them to the formal garden.

A contemporary complains that the cultivator of the Vine "really seldom follows, but rather rudely flouts, Nature in the matter of syringing. He deluges the undersides of the leaves, and he bedews or sprinkles the upper. The difference of place is," we are told, "vital. The structure and functions of the two sides of the leaves are widely different, and yet the indiscriminate syringer treats the matter of place syringed as of no moment. What would be thought of a nurse who put a cool lotion prescribed for a patient's head on to his feet?" &c. Well, most likely the nurse would be called a fool; and if we are not mistaken, this is the term a contemporary would apply to gardeners who syringe the undersides of their Vine leaves. The writer does not seem ever to have learned or enquired why gardeners syringe the undersides of the leaves, or he would have known that the object of doing so was to kill or prevent insects, which attack the undersides of the leaves only, and no amount of dewing of the upper surface will discommode them in the smallest degree. Gardeners do not syringe the undersides of their Vine leaves for any other reason, and they know also that it does not do the Vines the least harm; besides, as Vines are grown they cannot wet the upper surface of the leaves without wetting the under surface as well.

I have a last word to say on the subject of gas-tar paint for Vines. That my caution was needed is proved by what has been written on the subject since. The original recipe was one of tar to six of water and clay and lime. "O. P." reduced it to one in twelve, and now the original author of the recipe reduces it to one in twenty-five, with the important qualification that he "would not recommend anyone" to use it, even at that rate, for unhealthy Vines, though how Vines infested with mealy bug or other insects can be regarded as "healthy" I cannot see. Moreover, 18 pints of clay to 7 pints of tar and water makes putty, not paint; and I think that if the tar is so lost in the compound no one could "sniff a whiff" of it in the Vineries, neither will the bugs, which are certainly less sensitive than human beings in that way. My original contention was that the tar was really dangerous; now I say it is useless in its homœopathic form.

When I spoke of "Corn growing" in Britain in my original note (p. 562) I thought readers like Mr. Ellacombe and others would understand the expression in its usual sense—*i.e.*, as referring to the cereals generally. That there was Corn (Oats principally) in Britain before the Roman era, we know; but my history of this period, derived from the best sources, states distinctly that it was the Romans who "developed Corn-growing in Britain." Centuries after the Romans left Wheat was so scarce and dear that even the monks in the abbeys could not often afford to eat wheaten bread. When America was discovered the Indians grew Corn in the same way as the ancient Britons did, but it was the Anglo-Saxon race who developed America into a "Corn-growing" country.

I do not know whether the fact has been commented upon before or not, but I have observed that it is not always those Apples and Pears that produce the most blossom that set or swell the greatest proportionate quantity of or the finest fruit. Some very floriferous specimens of Pears which flower freely, even in seasons when bloom is sparse on most other varieties, have for years back borne the least fruit. The flowers appear to be well enough formed in all their parts, and they literally cover the trees, but they drop off without setting. I have noticed this times without number, and have almost come to regard an excessively floriferous habit as a sign of sterility more or less. Is there such a thing as inducing a too floriferous disposition—for I cannot call it fruitful—in a tree at the expense of a leaf or shoot growth? It is generally believed by practical men that Peaches set and swell the finest fruit when the fruit buds are produced in moderate proportion, and it is the practice to thin the bunches of the Vine before they come into flower to aid the setting process and ease the Vine, and it is most probable other fruits are affected in the same way. The Beurré Clairgeau Pear on the Quince needs no root-pruning, but produces naturally a column of closely-set clusters of flower-buds that produce year after year but a few fruits, and other kinds similarly affected by the Quince behave in the same manner as a rule.

Our "botanical" gardens, so called, but more properly speaking, public gardens, might render greater service than they do by

illustrating practically some of the better phases of flower gardening, in conjunction with the great horticultural exhibitions frequently held under their auspices, and absorbing, it is to be feared, much of the energy and means that might be more usefully employed. As a rule, our provincial botanical gardens are little else than pleasure gardens or public promenades, but many people visit them at this season in the expectation of seeing something in the way of good gardening, and they might be made excellent schools in that respect, but few of them deserve the title. Not long ago (to mention a typical example) at a noteworthy horticultural exhibition, where the most liberal prizes are bestowed upon collections representing all phases of gardening, and much encouragement given to pretty and useful hardy plants, which are annually an attractive feature of the show, it struck many visitors, both amateurs and gardeners, that the society greatly neglected the opportunities its own spacious gardens and its means afforded of inculcating practically what it did so much to encourage by precept, and of showing what could be done with numbers of fine hardy and other plants in their own proper sphere—the garden. The outdoor gardening was of the most paltry description, and although neither energy, skill, nor liberality was wanting in the organisation of the exhibitions, it could not but strike the most casual observer that if these were taken away nothing would be left worth speaking of. The so-called flower garden, consisting of some sixty beds, large and small, was laid out in the poorest style of the bedding system, about four-fifths of it being filled with two or three varieties of Geraniums, and the remainder with six or seven of the very commonest subjects employed for such purposes, not one single striking plant or object being used to relieve the depressing uniformity in any way.

In the so-called hardy garden, open to the public, things were even worse. An attempt to show the different genera, by means of a few common types planted in a garden of a much cut-up, formal pattern, was a sad failure, nearly half, and in many cases more than half, of the plants having evidently been long dead, and only represented by their labels, which, being of large size and thickly placed, suggested the most mournful reflections and associations. A gentleman who was perambulating this garden of the dead observed to another whom he met, "A great contrast this to the collection in this hardy tent," charitably suggesting that possibly the cold winter had killed the plants, and that the labels were left "in memory of" them. In three small beds, for example, containing some thirty-six iron and wooden labels—many of the latter written wrong end up—there were only twelve living subjects. Much time and labour had evidently been spent in cutting the grass about, and clipping the edges of the vacant beds.

If it was necessary to have a botanical collection of this kind a more suitable and convenient situation could easily have been found for it, and the prominent position it occupied would have displayed, in an attractive manner, the numbers of beautiful hardy plants now available and desirable for flower garden decoration at this season, and which many would have been glad to see and take note of. It seems a pity that a public garden should neglect its own proper functions for the sake of one or two sensational flower shows during the season, and it is not creditable that any society should rely almost exclusively on such aids for its income or reputation.

The rivals to the single Dahlias are going to be the Pyrethrums. At one of the late exhibitions Messrs. Ware and Messrs. Kelway & Sons set collections of these alongside collections of the double kinds, and there seemed a very general concurrence of opinion that the single ones were the prettiest and best. The colours vary from deep crimson, verging on scarlet to white; indeed, there are no end of pretty shades between these two, and more conspicuous and telling subjects for the flower garden at mid-season and onwards it would be difficult to find. They are simply big coloured Paris Daisies, and good for cutting.

In the north and midland counties it is acknowledged that the past month of May has been on the whole one of the finest May months experienced for some ten years back. When May began the season was late, but it has gone out, leaving us a fortnight earlier than has been the case for several years, according

to the leafing of the trees. It has been a pleasant warm month, with a few days of east winds at the beginning, but everywhere vegetation is luxuriant to a degree, and the sunshine and the rain have just been in the right proportion. Pear and Apple blossom is not so abundant as it has been during some years, but it is plentiful enough and healthy, and at the present time there is a better prospect of crops than there has been for a long time. Garden crops, too, look well generally, and altogether there is a fair promise of fine crops, if only we have a good midsummer and autumn.

The weather-wise are already commenting on the fact, most noticeable this season, that the Oak is far in advance of the Ash, farther than has been the case for years, and a dry season is of course predicted. For years past in this neighbourhood both trees have come into leaf at nearly the same time; but this season, whatever it may betoken, the Ash is nearly a fortnight behind, standing out in the landscape leafless, while the Oak is in full foliage, and as green and luxuriant as the Plane.

It is not a little strange, seeing that the necessities of root-pruning are so well recognised in the culture of fruit trees, that some readier and more efficient means for effecting that object than the periodical mutilation of the roots by the knife and the spade has never been discovered or suggested. It was thought at one time that the use of dwarfing stocks would obviate the necessity of root-pruning to a great extent, if not render it needless altogether; but such is not the case, for the greatest advocates of the Quince and the Paradise still maintain the necessity of periodically curtailing the roots as much as ever, one noted cultivator going the length not long since of recommending the trees to be grown in perforated pots, through which the roots protruded annually, and could be cut away at the end of the season. If the need for root-pruning is so urgent in our climate, surely some more rational and convenient plan could be adopted whereby the roots of a tree could be restrained, and its fertility rendered more certain without having recourse to practices that are not only troublesome, but doubtful in their results. In the culture of pot plants, whether for fruit or flowers, gardeners avail themselves of the ready means which the common flower-pot or tub affords of keeping the roots within bounds, and in the case of many things, of which the Fig is an example, succeed in preserving a permanent state of fertility without any root pruning at all, no matter how long the period or how rich the soil. Why not adopt an analogous plan with fruit trees, and save ourselves the trouble of so much digging and root chopping and other restrictive processes? It is possible, I presume, to have an earthenware pot or tub manufactured in which to plant bush Apples, Pears, and stone fruits, in the same way as orchard house trees, and that could be plunged in the garden border up to the rim, where the most attention the trees would require, under such circumstances, would be the watering and manuring of their roots, and the gathering of the crops which would result. In this cool climate of ours where the importance of keeping the roots of fruit trees near the surface of the soil, and within the influence of the sun's heat, is so well recognised, it is clear that a fettered rooting power should be the aim instead of free growth, and consequent indulgence followed by periodical "coercion," which is "no remedy" in fruit culture any more than in other things. These thoughts have been suggested by seeing not long since some fine Fig and other trees in large pots, from which they had not been removed for the space of seven years, but which bore regularly and well, through being simply well watered and annually top-dressed on the surface with some rich compost. The trees were bushy in habit, and the wood short-jointed, firm, and fertile, and such a thing as pruning was hardly ever required.

PEREGRINE.

Notice.—Readers who possess the GARDEN ANNUAL will greatly oblige the Editor by sending him the names of any good gardens in their vicinity omitted from it, and by making any needed corrections in it. Convenient printed forms for filling up will be sent by return of post on application to the "Editor," GARDEN ANNUAL, 37, Southampton Street, Strand, W.C. Notices of appointments to important gardens would also be gratefully received by us.

THE GARDEN FLORA.

PLATE CCLXXXIX.—JASMINUM PUBESCENS.

THIS sweet-scented, free-flowering shrub, now called *J. gracilimum*, is quite a favourite in some parts of Borneo, where the natives use its flowers for perfuming their hair. Naturally, it assumes the shape of a bush, 8 ft. or 10 ft. in height, the clusters of flowers being produced in the axils of the leaves, thus forming wreaths of bloom 1 yd. in length, and, contrary to the general rule with species of this genus, the flowers adhere tightly to the stems. Beautiful as this Jasmine is in a wild state, by far the most floriferous specimens I saw when in Borneo were such as had been transplanted into gardens or open Grassy plots near houses, and where the goats and buffaloes had pruned them into bare stumps during the dry season when provender is scarce. Large bushes are then eaten down in the way just named, every shoot being nibbled off to its base and denuded of every leaf. Full exposure to a tropical sun searches and bleaches the old bee-hive-shaped scrubs until they look lifeless and miserable, but on the return of the wet monsoon, when provender becomes everywhere plentiful, the goats betake themselves to fresh pastures, and the Jasmine bushes, left uninjured for the time, break out as if by magic into verdant shoots, which in a few weeks' time become transformed into wreaths of white clusters of blossoms. In this state it is difficult to believe that the lovely fountain-like shrubs in question are really the same as those denuded of leaves and shoots only a short time before, but so it is, and the rude, unconscious mode of pruning to which they have been subjected improves them immensely from a gardener's point of view. Naturally, the flowers are larger than those shown in the accompanying illustration, which otherwise is a perfectly faithful one. As shown by Messrs. Veitch & Sons at South Kensington last season, the plant (that from which our plate was prepared) was much admired, and for once the gardening press was unanimous in its praise and portraiture.

Culture and Position.—As a pot plant it is very graceful, nor are its pure white flowers the less welcome because produced during the winter months. Grown as dwarf bushes, well exposed to the light in a warm temperature, this Jasmine is a plant of easy management, and I am of opinion that the best results will be obtained by pruning it in to the old stems every season. Even quite young plants in small pots bloom profusely, and as its slender twigs have a gracefully pendulous habit it is well suited for decorative purposes.

F. W. B.

Primroses and Red Spider.—The weather, which for some time past has been almost tropical (I registered the other day 72° Fahr. in the shade, and 120° Fahr. in the sun), has been certain death to the foliage of all fully exposed Primroses, Polyantheses, *Primula japonica*, which had only commenced to open finely, Anemones, Auriculas, and almost the whole of the spring bedding and border plants. The leaves have drooped, turned yellow, and become finally infested with red spider. I know of no remedy, the spider being underneath the leaf, except pinching off those turned yellow, and, as this is an unsuitable time for division, mulching the crowns. Some of mine have wholly withered, so I have cut away the leaves and covered the crowns with mould; except good kinds, it would be more desirable to rely on seedlings, sown as soon as the pods are ripe; they give much greater satisfaction and finer blooms.—W. J. M., *Clonmel*.

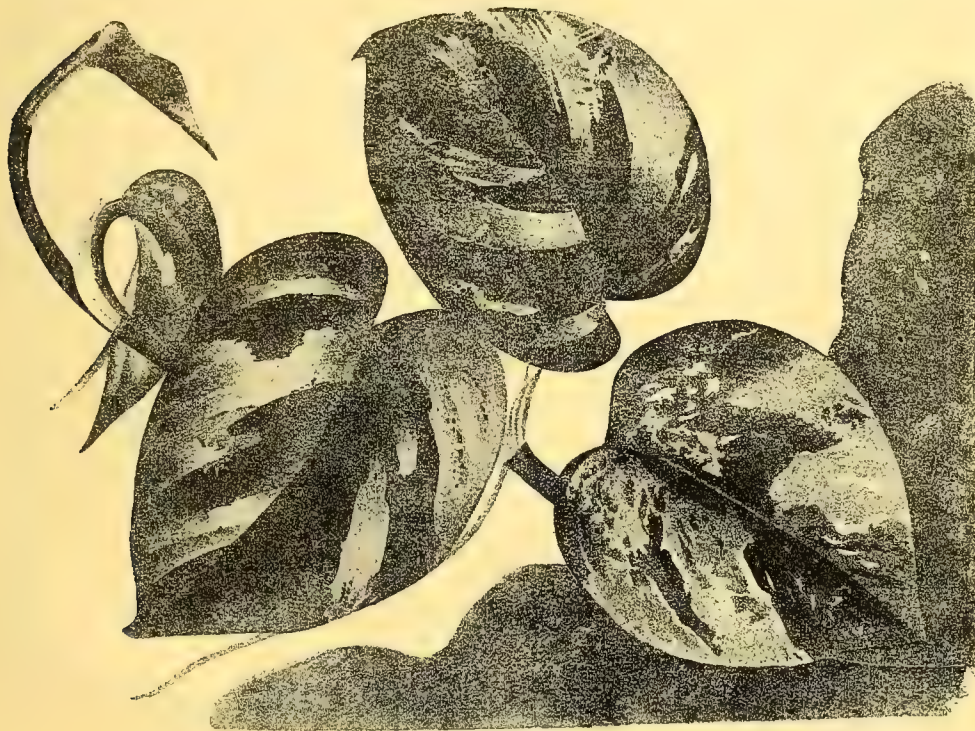
Humea elegans.—As an ornamental plant to furnish a vase or to place in the centre of a bed, few surpass this Humea, which although not very showy, is exceedingly graceful; its warm coloured grass-seed-like inflorescence, depending from such slender support, produces a pleasing effect. For cutting, too, the light feathery sprays are very useful, as few things impart a more finished appearance to a glass of flowers, and, independent of its value as a pot plant, it is worth growing for this purpose alone. The proper time to sow seed is in July or August, as plants of it do not bloom the first year, and if raised before they get too large to winter conveniently, often become leafless below, which nakedness of stem greatly detracts from their beauty. To prevent this partial defoliation, they should be kept well fed during winter with weak liquid manure, and receive a shift into larger pots early in spring, using rich soil for the purpose, as Humeas are very gross feeders, and can only be kept in a vigorous healthy condition by affording them a liberal diet. If so treated, they will retain their leaves down the entire length of their stems, which greatly adds to their beauty.



When planting them out in beds, which may be done by the first week in June, it is a good plan to put a spadeful of rotten manure under each, and mix it up with the soil, as then their roots have something fresh to lay hold of and are able to infuse fresh strength into the plants. As these, when of large size, hold a good deal of wind, they must be securely staked and tied to prevent them from blowing about and becoming damaged and disfigured thereby.—S. D.

POTHOS AUREA.

THIS is a valuable introduction for the embellishment of rockeries in hothouses and winter gardens. It is especially remarkable for the abundance of its much branched creeping and climbing stems, and on account of the golden-yellow which variegates the foliage in a very irregular, yet extremely elegant manner. It is a native of the Solomon Isles, and is amenable to the treatment accorded



Pothos aurea.

to *Dracenas* and *Crotons*, which for several years past have been introduced from these regions to adorn our hothouses. For its introduction we are indebted to M. Linden, of Ghent.

Damage done by Trespassing Fowls.—The state of the law respecting the damage done by fowls trespassing in the garden is not generally understood. Many imagine they have the right to destroy the birds so trespassing, provided they do not remove the bodies and utilise them. Such a proceeding would be unjust to the owner of the birds, as fowls, worth perhaps considerable sums, might be sacrificed for a trivial damage. No person would be justified in killing a horse or a valuable dog that had strayed into his garden, and the law is equally applicable to the protection of a fowl. Nevertheless, the injury often done by poultry must be remedied. We have frequently recommended the parties who have been aggrieved to sue the owners of the offending chickens in the County Court. The following case, which we quote from the *Derby Mercury*, is conclusive as to the efficacy of the proceeding. The case is as follows: *Matthew Davis v. Thomas Page* was a claim for £3, being for damage to a garden.—The parties reside at Peartree, and the damage was alleged to have been caused by the defendant's fowls.—The defendant was called to deny the allegations, but his Honour gave a verdict for 30s., including the 5s. paid into court.

Had the plaintiff killed or even injured the fowls he might have found himself in the defendant's place, whereas, by adopting a legal remedy instead of the high-handed proceeding that would have commended itself to many, he obtains a remedy for the injury done to his garden, and doubtless secures the abatement of the nuisance.

THE FRUIT GARDEN.

FRUIT TREES ON OUT-BUILDINGS.

WE build walls specially for fruit trees, and too often neglect the warm dry walls of both dwellings and out-buildings, which are far better in every respect for their culture than garden walls which cost so much to build, and which, somehow, are often very imperfectly furnished. One of our national failings is the indifference with which we look upon small matters, a fact which is apparent everywhere. The farmer ploughs, cultivates, and manures well the centre of the field, but the headlands, the approaches, and the odd corners are neglected. So it is in regard to weeding; much labour is bestowed on keeping clean crops, and yet the hedges and ditches are allowed to be full of Nettles and Thistles, the seeds of which are scattered abroad to make work for the following year. Thus, year after year, we go on and never think of breaking away from the track to which we have become accustomed. I have often thought when looking at the blocks of modern farm buildings now common everywhere, that a good deal of fruit might be grown on their outer walls, and that if glass was used for covering in the yards, the rent and something more might be paid with Grapes and Peaches. Why not? The manufacturer is compelled to work up his waste to enable him to realise a profit in these days of keen competition, and the farmer, if he is to hold his own, must turn everything to account, and among other things that the future has in store for us is the utilisation of farm buildings for fruit culture. There are now several systems of glazing without putty in

existence, and where there is no outside woodwork exposed the heavy cost of painting and repairs will be done away with. I am convinced that good Grapes could be grown in a farmyard covered over with rather thick strong glass. Pears, Plums, Peaches, and Apricots might also be grown with more certainty than in our best planned gardens. The time may not be quite ripe for this yet, but I feel sure it is coming. We complain of our seasons killing the blossoms of our fruit trees. We grumble at the amount of produce the foreigner sends us, and the money which it takes to pay him, and yet, as I have said, we move on in the old rut, without making any vigorous effort to improve matters. As the population increases farming must approximate nearer and nearer to gardening. The farmer of the future must make himself acquainted with nearly all cultivated economical plants, in order to select those which suit his land best and that will produce the most profitable crop. He must also gain some knowledge of fruits and their culture, and then I think he will see clearly the advantage of glass-covered yards.

Of late years an attempt has been made in Wales to establish a Vineyard on the French system—such as no doubt existed in this country many years ago—but whether it be possible to grow Grapes good enough for wine making in the open air without any shelter or not, there can be no doubt that they might be grown

in immense quantities by utilising farm buildings for their culture. If my memory serves me rightly, there was a large cow-house covered with rough plate-glass in Wales in which good Grapes were grown some years ago, and Apricots have been produced of good quality in a cart-shed covered with a glass roof. That fruit culture can be profitably carried out in some such ways I feel certain; in fact, I should expect to see better Grapes, finer Peaches, Apricots, and Pears produced in large roomy glass-covered yards than in the more costly structures in gardens. There can be little doubt that plants do take in nourishment through their foliage, and it will be a good step in advance when we extract the ammonia that taints the atmosphere in the neighbourhood of our farmyards and convert it on the spot into Grapes and other fruits, at the same time utilising the heat accumulated to force them forward. A gardener, in even the best situations, often has a hard struggle to get fresh soil for his Vine and other fruit tree borders, as well as manures, both liquid and solid, but a farmer will have no such trouble; everything he may require will be at his elbow, ready for use.

Well-ventilated glass-covered spaces will give us a climate like that of the south of France and the Channel Islands, and we shall be able to compete with the former in regard to Apricots, Green Gage Plums, &c., and with the latter in Grapes and Pears. A crop of good winter Pears will, perhaps, be more valuable than Grapes, but there is plenty of choice. What a Rosary one of those glass-covered yards would make. Only fancy a yard 30 ft. or 40 ft. square, covered with a glass roof, with Tea and Noisette Roses planted round the sides, and led upwards till they meet under the glass. What a pleasure it would be to look up at the drooping buds growing in the wildest luxuriance, and, above all, think of their value in the market. Some may think I am building castles in the air, but things are being accomplished every day that are far less feasible. To build in the old-fashioned way, however, will not do. We must have a roof that can be cheaply erected, and that will last for years without much cost for repairs. There must be no putty employed, and no perishable substance exposed to the weather to require outside painting. This can now be secured by more than one system of glazing, and no doubt improvements will be effected in accordance with the demand.

In furnishing yards or buildings of any kind with Grape Vines the borders may be under the paths or else outside altogether, and the Vines introduced at the corners. Four Vines will cover a very large space in a few years, and the extension system is the right one to adopt in such cases. The Black Hamburg and the Sweetwater will be the best kinds to plant. Apricots, Plums, Cherries, and Pears will also grow rapidly in such buildings, and should be allowed plenty of space. Standard trees one or two years trained will be best.

Pears for Planting under Glass.—Bergamot d'Esperen, Beurré d'Anjou, Beurré d'Arenberg, Beurré Diel, Beurré Rance, Easter Beurré, Winter Crassane, Pitmaston Duchesse d'Angoulême, General Todleben, Glou Morceau, Victoria (Huyshe's), Josephine de Malines, Ne Plus Meuris, Winter Nellis, Chaumontel, and Zéphirin Grégoire.

Plums for Planting under Glass.—Coe's Golden Drop, Goliath, Green Gage, Huling's Superb, Kirke's Blue, Jefferson, Transparent Gage, and Washington.

Apricots.—Moorpark, Peach, and Royal.

Cherries.—Governor Wood, May Duke, Royal Duke, Frogmore Early Bigarreau, and Black Tartarian.

Peaches.—Early York, Hales' Early, Crawford's Early, Royal George, Noblesse, Walburton Admirable, and Prince of Wales.

Nectarines.—Balgowan, Downton, Elruge, Pine-apple, Viollette Hâtive, and Pitmaston Orange.

Grapes.—Black Hamburg, Foster's Seedling, White Muscadine, Sweetwater, and Esperione.

In these selections I have been thinking chiefly of culture under glass, and although the Pears, Peaches, Apricots, Plums, and Cherries will also be suitable for planting against buildings, yet I add a few earlier kinds of Pears and a few earlier kinds of Plums.

Pears for Planting against Buildings.—Beurré Bosc, Brown Beurré, Bon Chrétien (Williams), British Queen, Passe Colmar, Doyenné du Comice, Jargonelle, Louise Bonne of Jersey, Marie Louise, Fondante d'Automne, Uvedale's St. Germain, and Hacon's Incomparable.

Plums.—Prince of Wales, Ickworth Impératrice, Magnum Bonum, Pond's Seedling, Denyer's Victoria, Reine Claude de Bavay.

Cherries.—Morello.

Some pains should be taken with the site before the trees are planted in order to give them a good start. A well-drained bottom is absolutely necessary; and another essential is 2 ft. in depth of good soil. I do not wish to complicate matters by multiplying details, which nine out of every ten who plant fruit trees ignore, but these two points must be insisted on, and there will be less difficulty in this case than is usually met with.

Country homesteads either are or should be well drained. They are generally built where a good outfall can be secured, so that if it should be necessary to put in a short drain or two along the base of a wall to prepare a border for fruit trees, very little labour will do it. Then, again, if any of the soil should require changing there are horses and carts on the place, and some day, when other work is not pressing, some unsightly ridge or bank can have the turf skimmed off 3 in. or 4 in. thick, chopped up, and carted to form a fruit border. The bank can then be levelled and sown thickly with Grass seeds, and so two useful improvements will have been carried out at one and the same time. If in a dry warm season the trees require support a hose from the liquid manure tank will supply it readily.

E. HOBDAV.

SUPPLIES OF APPLES FROM THE UNITED STATES.

THE following particulars of barrels of Apples shipped to the United Kingdom from the United States during the season 1880-81 will prove interesting, as showing to what extent we are dependent upon America for supplementing our home supplies:—

Asperstatement, July 31 to Dec.	N. York	Boston	Phil.	Montrl.	Halifax	Portlnd	An'p'lis.	Total.
25, 1880	417,323	372,211	880	144,458	8,480	9,577	20,000	972,929
Jan. 1 -	3,835	8,323	15		220	1,380		13,773
8 -	8,092	9,500	200		500	1,409		19,692
15 -	10,632	11,400	300		350	950		23,632
22 -	8,676	13,145	400		1,540	2,050		30,811
29 -	8,731	12,200	300		200	2,880		24,311
Feb. 5 -	4,534	6,700			2,300	1,921		15,455
12 -	6,885	10,100	150		440	2,000		19,575
19 -	13,316	16,795	200		4,650	3,850		38,811
26 -	13,957	8,850	500		350	1,600		25,257
Mar. 5 -	13,518	12,418	625		375	2,000		28,936
12 -	19,559	8,050	643		255	1,500		30,007
19 -	15,415	9,667	1,300		300			26,682
26 -	19,669	1,800	1,854		450	5,600		29,373
April 2	14,790	2,100	1,210		210			18,290
9 -	8,778	1,435	805		1,800	2,600		15,413
16 -	6,750	144	500		1,540			8,334
23 -	1,595	462			300	400		2,756
30 -	1,935							1,935
May 7 -	937			S13		200		1,955
14 -	274		5					279
	599,200	510,300	9,872	145,276	24,250	39,908	20,000	1,348,806

MULCHING NEWLY-PLANTED FRUIT TREES.

So much depends upon the start that a young fruit tree makes the first year of planting that every care should be taken to ensure free growth. In damp unless summers newly-planted trees get enough and oftentimes more than enough of moisture at the roots, but seasons are uncertain, and the probabilities point to our getting this year a hot dry summer. Trees planted in the autumn, having before winter set in got good hold of the soil, are not so likely to suffer, but where planting was deferred until spring, some means should be taken to protect the roots against the desiccating influence of our arid atmosphere and burning sun. With all the care that may be bestowed upon them in the way of watering, progress will never be so great, and the trees will never exhibit that thrifty vigour as is the case when the soil around the roots is preserved in a more or less uniformly moist state. By the middle of March a good coat of litter some 4 in. thick should be applied, for, as in this year, the drying winds of early spring are apt to unduly parch the soil before watering is thought of. Watering indeed in the case of newly planted trees must be considered as a necessary evil, to be avoided if possible, for if the roots can be kept cool and moist without drenching them with cold water, so much the better for the trees, the health of which in a great measure depends upon the earth in which they are planted remaining at a more or less even temperature.

With a good mulch of long manure, or some such non-conducting material, there will be but little need to water until the summer months arrive, and then an occasional soaking if

the weather should prove exceptionally dry will ensure to the roots the necessary amount of moisture, any deficiency of which during the first year of growth will exercise a most prejudicial effect upon the future welfare of the tree. In Normandy and in other parts of the Continent, where all that relates to the Apple is regarded as of the highest interest, mulching is considered one of the most important operations connected with the planting of fruit trees. Few planters there would consider that they had carried out the work in a thorough and workmanlike manner did they omit the clothing of the soil over the roots with a thick layer of non-conducting material.

Mulching not only acts beneficially in preserving the tree against the effects of the sun's scorching rays, but it lessens labour to a considerable extent, and where the trees are set upon slightly raised mounds, it must be regarded as an absolute necessity. Drought is by no means the only enemy that fresh planted trees have to contend with; hard frosts and continued easterly winds drying out the soil and arresting the flow of sap, which vegetable physiologists tell us never even in the case of deciduous trees entirely ceases, exercise an equally inimical effect upon their health. In many cases where new plantations have failed to do well, the cause might be traced to the effects of a hard winter. When a severe winter is succeeded by a harsh dry early spring, newly planted trees are apt to get their vitality so lowered, that no amount of care afterwards will restore the lost vital energy. Such an instance came under my notice last year. A friend of mine planted a number of Apples, Pears, and Plums in a rather low-lying situation. Having heard of the advantages of "mound" planting, he asked my advice upon the matter, when I at once voted for raising the roots above the ground level, at the same time warning him that the trees would be likely to suffer if not well mulched. The latter part of my counsel my friend did not take; "they will lay hold of the soil by winter," said he, "and be all right." But it chanced that cold frosty winds prevailed in combination with hard frosts, and that when the gentle refreshing rains that my friend depended on to fall in spring failed to come, the trees also failed to put forth leaves, and there was an end to them—good trees and labour lost for the want of a little extra expense at planting time, for assuredly some 4 in. of litter applied in the autumn would have kept them healthy. J. C. B.

SEASONABLE WORK.

Peaches.—When all the Peaches have been gathered from the early houses the trees must be well washed with the syringe to free them from all kinds of insects, and the borders must be well mulched and watered with diluted liquid or clear water, according to the strength of the young growths and the quantity of fruit the trees have brought to maturity. As next year's crop depends upon a clean, healthy, well-ripened growth, all shoots rendered useless by the removal of the fruit should now be cut away to admit of the free admission of light and air, gross shoots should be stopped or removed, and ventilation should be of the most liberal character.

Succession Houses, in which fruit is now taking the last swelling, will require copious supplies of water, good syringing twice a day, with a temperature ranging from 60° at night to 80° by day. Elevate all pendent fruit and keep the foliage turned aside where colour is an object. Pinch the points out of the shoots intended for removal after the fruit is gathered, and secure flavour by giving an abundance of air. Where the brilliant weather we had in May has hastened late houses, the ventilators may be kept constantly open; frequent damping with cold water will keep the atmosphere cool, and an unrestricted growth of the young wood will help to retard the stoning and swelling of the fruit.

Figs.—Trees swelling off second crops of fruit will take large quantities of tepid liquid, good mulching, and copious syringing twice a day. Stop all gross shoots for the last time, thin out side growths, expose the fruit to full influence of the sun, and aim at quality in preference to quantity by thinning out all small and badly placed Figs before they have time to jeopardise the whole of the crop.

Successions now ripening will require a free circulation of warm air with a corresponding reduction in the supply of atmospheric moisture, but great care must be observed in the application of water to the roots, as anything approaching drought will most likely cause premature ripening.

Late Houses.—This season will well repay all the attention that can be given to them, as owing to the terrible destruction of old trees in all parts of England, outside Figs will be very scarce. Train thinly, give plenty of air through the early part of the day, and close the structure with solar heat and moisture to insure the proper swelling of the fruit. If necessary to keep the crop for autumn use night air may be given.

Melons.—About this time a number of pits and frames will be set at liberty by the clearance of forced vegetables and the more tender bedding plants. To make the best use of these, a good stock of the leading kinds of free-setting Melons, including Golden Gem and Victory of Bath, should be ready for turning out in strong, but not over-rich loam, placed in ridges some 18 in. from the glass. As many of the preceding occupants leave a colony of insects behind, the frames and lights should be well cleansed with boiling water, and in order to give the plants a start, a trench may be taken out along the centre of the old bed, and filled in with fermenting leaves or stable manure, which should be made very firm before the soil is introduced. A good external lining along the front will also assist the plants through the early stages of growth. Early crops now swelling or ripening off will well repay steady attention to linings and covering up with mats at night. Reduce the supply of water and atmospheric moisture when the fruit begins to change colour. Ventilate more freely on bright days, and insure flavour by full exposure to sun and air. The cultivation of Melons in houses after this time is a very simple matter, the main points being a bottom-heat of 85° to 90°, plenty of air on fine days, to secure dark green, sturdy foliage,

an abundance of water to the roots, and good syringing to keep them free from insects.

Hardy Fruit.—Owing to the scarcity of rain and the prevalence of keen north-easterly winds, it will be necessary to examine newly planted trees and give them a liberal supply of water. At the same time look well to the mulching and increase it if necessary to prevent loss of moisture from evaporation. The above conditions having been favourable to the development of insect pests, fruit trees on walls, particularly Cherries, have been infested with black fly, and, as this soon cripples the young growths, timely attention to dipping in Tobacco water or some other insecticide is of the greatest importance. To save time, all established trees should have the tips of the breast-wood removed and burnt, and leaders, where extension is desirable, will require repeated dippings until they break into clean, healthy growth. The principal attention to Peaches and Nectarines will be the final thinning of the young wood, nailing and tying-in to prevent injury from wind, and good syringing to keep them free from spider. Where they are trained upon the cordon system, pinching will require daily attention, for if neglected, the strongest growths near the top of the wall will rob the weaker shoots near the base and destroy the balance of the trees. Apricots, the most unsatisfactory kind of fruit we have to grow in the open air, will require pinching to keep gross shoots within bounds. See that the roots are well mulched, water copiously, and wash with the engine on mild evenings. Mulch Strawberries and give them an abundance of water in dry weather. To secure the ripe fruit from the depredations of slugs, it is a good plan to truss them well up from the ground by placing four short sticks to each stool and running a piece of matting round the outside. Young plantations from which early runners are to be obtained should not be allowed to carry fruit. We always plant specially for this purpose and remove the stems before they come into flower. W. COLEMAN.

THE KITCHEN GARDEN.

AUTUMN-PLANTED CABBAGES.

THE two varieties of Cabbage which I have found to withstand the last two severe winters best are East Ham and Enfield Market. Several other of the leading varieties planted on the same break of ground were nearly all killed, and a number of them run to seed in the spring, while in the case of the East Ham and Enfield Market scarcely one run to seed. In order to have a good crop of Cabbages early in the spring and summer the plants must be strong and stocky before making the plantation, which should be done some time in October. The plants ought to be pricked from the seed beds into a piece of ground which is rather poor, for if too rich the plants grow too gross and full of sap to withstand the winter frosts. I sow the third week in July, and make another sowing about the first or second week in August. Choosing an open piece of ground for my seed beds, I sow broadcast upon beds 4 ft. wide, or the seeds can be sown in shallow drills 3 in. apart, covering them with some fine soil. Soon after sowing I give the beds a good dressing of soot and lime and burnt wood ashes. If wood ashes be not convenient to get, collect all refuse from the garden, such as Cabbage stalks, dry vegetable leaves, and prunings of trees and bushes; choose a fine day and burn them. Their ashes will be found to be very useful mixed with soot and lime for sowing over seedlings newly pricked out. A good dressing of this compost tends to induce a mass of fine, strong roots, and prevents clubbing. Since I have used heavy dressings of lime and soot I scarcely ever have one clubbed plant during the season, and before I employed this dressing quantities clubbed. The mixture of soot and lime kills the young grubs which cause the clubbing.

As soon as the young plants in the seed bed assume the fourth leaf, prick them into an open piece of ground, which should be rather poor, so that the young plants may grow short and stocky. I generally choose the piece of ground for my plantation of autumn-planted Cabbages where summer Onions grew. I trench it as deeply as possible, and manure it well at the same time. I plant my main crop, as I have said, in the second or third week in October, keeping the rows 12 in. apart, and the plants from 9 in. to 12 in. asunder in the rows. By planting closely a good crop of young Cabbages may be got in the spring, using them as green Coleworts. As soon as the plants are large enough for use, every second row may be cut, and after finishing the rows every second plant in the rows left can be cut for the summer crop. There will then be a full crop of plants, 2 ft. from row to row, and from 8 in. to 2 ft. plant from plant. Cabbages are greatly benefited by a dressing of artificial manure applied between the rows, as soon as the plants begin to grow freely in the spring. I have used superphosphate for my crops for several years, and I find that they grow quicker from using it than any other manure which I have tried. Choose a dry day to sow the superphosphate, for if the leaves are wet, and any of the manure falls upon them, they turn yellow, and a good part of your plants is often thereby destroyed. After sowing the manure between the rows, hoe the ground well to mix with the soil. When the plants are large enough draw the soil well up to their stems with a draw-hoe. If they grow freely you will have some good hearted Cabbages by the middle of May, if the weather has been favourable to the growth. We have been cutting some nicely-hearted Cabbages of both East Ham and Enfield market for some time. One of the best Cabbages

for sowing early in spring for mid-summer and autumn use is Carter's Early Heartwell. The earliest sowing can be made in a box some time in March, placing it in a cold frame until the plants are large enough to prick out on a dry warm border. As soon as large enough, plant out in their permanent quarters in rows 15 in. apart, and 15 in. plant from plant. This Cabbage requires less room than a good many varieties, as the leaves grow close and compact, and compact heads are soon formed. In flavour it is excellent, and it withstands early frosts better than most Cabbages if well hearted before they set in the autumn.

WM. CHRISTISON.

The Rookery, Bromley Common.

WATERING IN DRY WEATHER.

It often happens that very dry weather prevails about this time when it is desirable to sow the various kinds of vegetable seeds, such as Broccoli, winter Greens, Lettuces, Endive, &c., and instead of watering the soil after the seeds are sown, it is much better to thoroughly moisten it before sowing, and shade afterwards until the seeds have fairly vegetated. The following practice may generally be followed with success: After the soil has been carefully dug or forked over the beds should be marked out and thoroughly watered over night and the seeds sown early the following morning. Early morning is the best time in which to sow seeds, more particularly small or light ones, as generally speaking the air is then comparatively still. As soon as sown the surface of the bed should be gently beaten or rather patted down with the back of a clean spade, and the seeds should be slightly covered with a portion of the comparatively dry soil from the intervening alleys. The beds should then be neatly raked over and the surface covered with a single bast mat, Frigi Domo, moss, or dry litter. This covering should be allowed to remain until the seeds have fairly germinated. If a mat is used it should be pegged down at the sides to prevent its being blown off by high winds. Thus treated, the seeds speedily vegetate, and as soon as that happens the covering should be removed, and if the weather still continues dry, the beds should be well watered with a moderately fine-rosed watering-pot, taking care to water gently, so as not to disturb the surface of the soil. In the case of larger seeds, such as Peas, Beans, &c., which are generally sown in drills or shallow trenches, whenever there are indications of dry weather setting in, the bottoms of such trenches should be well soaked with water before the seed is sown, and if diluted manure water is used for the purpose, so much the better, as that will greatly facilitate germination as well as the healthy development of the young plants. With regard to fruit trees, which "Dorking" also mentions, if they are well established, and if the drought is not greatly prolonged, they will generally take care of themselves. But in cases where they may have been recently transplanted or in a weakly condition from some cause, such as carrying a heavy crop, then a thorough watering is of benefit to them. The water should not, however, be merely poured on the surface, as in that case the moisture would speedily evaporate; on the contrary, a hollow or circular basin as wide as the extent to which the roots run should be formed round the stem of the tree intended to be watered, and this basin should be filled with water, and when that has been fairly absorbed, the dry soil forming the sides should be levelled in, an operation which will in a great measure tend to check evaporation. One or two thorough waterings performed in this manner will generally be found to be sufficient to carry a fruit tree of any kind in safety through even an exceptionally dry season.—P. GRIEVE.

— If "Dorking" has ample command of water exposed to the air and softened and warmed by it, he may employ it as largely as he likes and when he likes without scruple; but if he has to lift it from a deep well and use it in its hard, cold, primitive state, then water may be productive of harm. Unless his soil is beneath the surface excessively dry few established things should need water yet—fruit trees least of all—as heavy waterings may promote excessive summer growth, and perhaps cause much of the young fruit to fall. In hot, dry weather, in July and August, watering may be useful, but as a rule established trees seldom need watering. A good top-dressing of long manure, which would help to retain what moisture was in the soil, would no doubt be of more service. In the case of seeds and newly-planted things, watering in hot, dry weather is quite indispensable, but then, where possible, the things watered should be shaded, as a burning sun falling upon a freshly-watered seed bed serves but to bake the surface, and oftentimes causes the seeds to germinate in the morning to be roasted up and destroyed later in the day. When there are cold nights and danger of late frosts, it is best to water early in the day; but if safe to water at night, no doubt plants and seeds secure much more of the moisture than when given in the morning. In any case, it is quite open

even as an experiment to water some of the main things, and leave others to take their chance; this will in the result practically decide whether "Dorking" or his gardener is right.—A. D.

Scarlet Runners.— Few vegetables are more productive than a well-managed row of Scarlet Runners. By keeping all pods picked off as soon as large enough, one small row will produce enough for the consumption of an ordinary family. For the supply of a large establishment we make two sowings, the first at the latter end of April. This we generally make in a sheltered corner on hard ground on which we spread about 3 in. of fine soil, and then scatter the seeds evenly over it, covering with the same kind of material, and if kept moist they will be fine plants by the middle of May for transplanting. A few branches are laid over them on cold nights. We generally plant in trenches prepared as for Celery, except that they are filled up level after the manure is dug in. The plants are carefully lifted and replanted with a trowel, and straight rods about 9 ft. high are driven in on each side of the row, and fastened to one placed horizontally about 6 ft. from the ground. These form an immovable framework for the haulms to run on. As soon as planted we put a few evergreen branches outside the stakes for shelter, and place a mulching of partially decomposed manure 1 yd. wide on each side of the row; a good soaking of water or liquid manure is also given about every alternate week, and thus treated they keep up bearing for a long time. We sow a few rows the first week in June for a very late crop, and in seasons when the frost keeps off; they are very prolific during October, and sometimes in November; any way one takes them they are an unfailing crop, and generally preferred beyond Dwarf or Broad Beans. The sorts which we grow are the old Scarlet and Carter's Champion Runner.—J. GROOM Linton.

Peas in Pots.— That only two gardeners should have competed for Messrs. Sutton's valuable prizes for four dishes of Peas at the recent great show at South Kensington affords evidence that very few grow Peas under glass for the securing an advanced crop. Perhaps more might have competed if a less number of kinds had been asked for, but it is as easy to grow a few plants of several kinds as many plants of one or two kinds. But there need be no difficulty in having half pecks of any kinds of Peas on the 1st of June in any large garden if a couple of hundred plants are grown singly in pots. Plants grown thus in 7-in. pots will give even without being forced at all some half dozen or more of pods on each for gathering them and two or three other as good gatherings in succession. Of course if sown early and a little warmth be given, Peas might be had a month sooner, and a succession carried on till Peas in the open garden were ready. There is a great advantage, moreover, in pot culture. The best dwarf Marrows will do as well under glass as will the white and blue rounds, and thus Peas of a superior quality may be had. It would be hardly worth while to take so much trouble with inferior kinds; the simplest plan is to sow picked seed singly in 3-in. pots, and when the plants are 3 in. in height shift them into 7-in. pots, using soil that has the benefit of a little "fertiliser" or other artificial manure. One stick about 2 ft. in height serves to support any dwarf Pea, and the labour of sticking and tying is trivial. I should like to see prizes offered for the best half dozen dwarf Pea plants in pots and in pod at the early June shows, as I am sure the result would prove much more interesting than are mere dishes of Peas.—A. D.

Pale Green Asparagus.— I fear this will hardly prove to be an acquisition, nor is it by any means new. A good many years ago I sowed some beds of Connover's Colossal and when the plants became strong enough to cut, it was observed that, here and there, in each of the beds, were heads of a pale delicate green colour, apparently the same as that mentioned in THE GARDEN (page 558), and I found on visiting the same beds a few days since that the plants are still in existence. So distinct are those green heads from the ordinary variety, that it was considered advisable to avoid mixing them in the same bundles, for they were generally tied in bundles by themselves, but they were found to be in no respect better than the ordinary heads, but, on the contrary, had a somewhat sickly appearance when cooked, and consequently never became favourites.—P. GRIEVE.

SEASONABLE WORK.

ONE of the most important operations in this department is the application of good mulching to advancing crops of Peas, Beans, Lettuce, and all the Brassica tribe. Where manure cannot be obtained short Grass from the lawns, applied after a heavy watering, will keep the ground cool and prevent the escape of moisture. The planting of successional crops of Cauliflowers in trenches as prepared for Celery claims special attention; a moderate quantity put out at short intervals is the best way to secure a steady supply of heads at a time when ordinary treatment ends in failure. Some time ago I pointed out the importance of pricking out all the Brassica tribe when large enough to handle. Where this system is

followed removal to the open quarters may take place at any time, irrespective of drought, provided the plants receive a thorough soaking to settle the soil about the roots after planting. Peas may still be sown in prepared trenches every ten days, or as often as the last planting breaks the ground. Follow up the planting of Celery as the plants become ready. Choose dull or showery days for this work, and water at once to prevent flagging. Many people have given up the deep trench system and have gone to the other extreme; but to grow good crisp heads in dry seasons it should be sufficiently low for the plants to receive a copious flooding over the surface. Next to good crisp vegetables, plenty of tender Lettuce and other salading form important factors in successful kitchen management. A steady supply being the object, a good strain of Cos Lettuce should be sown thinly in shallow trenches, prepared as for Cauliflowers, every ten days. Treated in this way, they can be thinned and complete their growth without receiving a check. Water Asparagus beds with liquid manure and place manure in the alleys to keep out drought. Thin out growing crops of all kinds, and keep the hoe constantly at work to prevent the appearance of weeds. W. COLEMAN.

THE FLOWER GARDEN.

DAFFODILS.

As Parkinson found two centuries and a half ago, so find I now that in some cases there is great confusion amongst the Daffodils. Lest this confusion should be handed down to the Daffodil lovers



Two-flowered Daffodil (*Narcissus bicolor dianthos*).

of 250 years hence, I now venture to illustrate a new plural (as opposed to singular) flowered Daffodil, of which Mr. Barr very kindly sent me fresh flowers some weeks ago. In THE GARDEN for June 4, p. 569, I directed attention to the forms at present known of this new race of "Polyanthus" or many-flowered Daffodils, *i.e.*, to such seedlings as naturally bear two or more flowers on a single scape. These varieties are firstly *N. tridymus*, a seedling raised by the late Mr. W. Backhouse, of St. John's, Walsingham, grown and sent to me by Mr. P. Barr; secondly, *N. Mastersi*, a seedling of the Rev. Mr. Nelson's raised at Aldborough Rectory, near Norwich (the home of those lovely dwarf Phloxes, some of which have been figured in THE GARDEN). This variety has two to three flowered scapes, and the flowers, instead of having sulphur perianths and golden cups, as in *N. tridymus*, have white perianth segments and sulphur-tinted cups, altogether a delicately beautiful and distinct variety. Still more recently in the present year I received from Mr. Barr a scape each of two seedlings raised by De Graaf Brothers, the well-known bulb growers of Leyden. Each scape had two flowers. They are seedlings from the *N.*

bicolor of gardens, and were produced "without any artificial fertilisation whatever"; so that, unless insects have helped the cultivator, these must be considered as spontaneously-produced seedling *Polyanthus* Daffodils. The one had sulphur perianth segments and pale golden cups; the other, and that I now illustrate for the first time, had white segments and golden cups; indeed, typical *N. bicolor* of gardens, but with two well developed flowers on one scape, a state of things I never saw before. Our illustration shows this variety, *N. bicolor dianthos*, of the natural size. What particularly struck me on examining these two twin-flowered varieties of *N. bicolor* was their rich and grateful odour, much richer and altogether distinct from that of the typical *bicolor*. I trust that Messrs. De Graaf may have a good stock of these two fine varieties. Of course, solitary-flowered Daffodils are lovely, but it is, nevertheless, very pleasant to have two beautiful flowers on a stalk sometimes instead of one. "Always partridge" is not always satisfying, as our Gallic cousins say. At p. 596, Mr. Brockbank has, unconsciously as it may be, misrepresented what I wrote about the sulphur-perianth Daffodils at p. 568. Botanically speaking, *N. bicolor* is nothing more than a variety of the common Daffodil *N. Pseudo-Narcissus*; indeed, all Daffodils whatever are simply forms of the wild Daffodil of our meadows, if we except the Hooped Petticoat kinds from Europe and Africa. Mr. Brockbank at p. 596 says, "I consider that there are two wild forms, the self yellow and the bicolor, and that from these arise the two sorts (Mr. B. means two races, I presume) which prevail throughout the series." Now as to the wild forms, there are at least twenty wild forms of the common Daffodil to be found in Britain and elsewhere in Europe. The "self yellow" is a nonentity altogether; at least after some ten or more years' study of Daffodils, no form is known to me which has not more yellow colouring on the corona or crown than on the perianth segments. Strictly speaking, all Daffodils are bicolor rather than self-coloured. Parkinson who wrote on Daffodils 250 years ago, particularly alludes to this fact, and so Mr. J. Baker in his review of the genus (see "The Narcissus" p. 67) in describing the typical wild Daffodil (*N. Pseudo-Narcissus*), is particular to say "divisions of the limb, more or less ascending sulphur yellow, paler than the crown;" and so also of the crown, "deeper and more orange-yellow than the divisions." Indeed, everyone who has ever gathered wild Daffodils from the meadows must be aware of this main fact, however variable in size, form, and habit the plants otherwise are. Mr. Barr pointed out to me the fact on which Mr. Brockbank lays such great stress so long ago as 1874, and of course Mr. Brockbank's botanical friends, whose names he mentions, could not well deny a fact which must have forced itself upon them if ever they paid attention to the wild Daffodils before their visit to Brockhurst.

In "The Narcissus," pp. 9 and 10, speaking of *N. Pseudo-Narcissus* var. *bicolor* (that is to say, the large "bicolor" of gardens, and not the bicolor of Bot. Mag., t. 1187, which is merely a very pale sulphur-limbed form of the common Daffodil, cultivated it may be), I am particular to point out that "this ('bicolor') is a Linnean species, but however distinct it may look in our plate, it is united with the common type of *N. Pseudo-Narcissus* by a series of pale-coloured forms." Surely after this Mr. Brockbank will admit that I had a clear notion of these pale-coloured or sulphur-limbed forms, and yet, as shown below at p. 596, he infers that the type of the species (*N. Pseudo-Narcissus*) of which I am speaking in my book, and at p. 568 in THE GARDEN, is "bicolor," which it certainly was not, as I was particular to name the variety (*N. bicolor*) as distinct from the common type of the species (the Daffodil, *N. Pseudo-Narcissus*).

I have referred to the paragraph Mr. Burbidge cites under the head "Explanation of Plates—Plate vi." wherein it is certainly stated that "Mr. Tyerman had supplied two forms of *N. Pseudo-Narcissus* from Tregony with pale, sulphur-tinted perianth segments and clear yellow cups, and these were exactly intermediate links in the chain which unites this beautiful variety with the common type of the species" (*viz.*, *bicolor*). On turning to plate vi. it gives us the large bicolor of our gardens, and there is nothing to show that Mr. Tyerman's specimens were wild ones, which was my point.

N. Horsfieldi is, no doubt, a very beautiful form of bicolor, and it is, I think, a little more hardy than *N. Empress*, and so, perhaps, better adapted for cold, heavy soils. Messrs. Rodger, McClelland

If Mr. Brockbank will look again at my Monograph of the *Narcissus* under the heading "Explanation of Plates," p. ix., and turn to *N. bicolor*, he will find that I do allude to the forms of *N. Pseudo-Narcissus* having sulphur perianths. Mr. Tyerman sent me two forms of *N. Pseudo-Narcissus* from Tregony with pale sulphur perianths and yellow cups, and these were exactly intermediate links in the chain which unites this beautiful variety (*N. bicolor*) with the common type of the species (the Daffodil, *N. Pseudo-Narcissus*).

of Newry (who are not quite "near" neighbours, however), sent me a fine stock of strong flowering bulbs of *N. Horsfieldi* which have flowered well here the last two seasons. So far as individual flowers go, however, the flowers of *N. Horsfieldi* are certainly inferior in size and substance when compared side by side with *N. Empress*, and, as I have before stated, I years ago noted the fact in Mr. Barr's collection. Indeed, if it were really a fact that *N. Horsfieldi* is superior in all ways, how comes it that the price of *N. Empress* is 1s. 6d. to 2s. 6d. per bulb, and *N. Horsfieldi*, is offered at 40s. per 100, or less than 6d. each? And after all, I have never yet seen anything in the Daffodil way that approaches Bain's big Irish Daffodil (*N. maximus*), with its golden trumpets borne aloft on scapes nearly 1 yd. in height, and yet stout enough to defy the most bitter east winds of March. F. W. B.

PERENNIAL POPPIES.

NOTHING can be grander than a mass of *Papaver bracteatum* in full flower. It was a long time before I found this Poppy. It is in the nurserymen's catalogues, but you generally get *P. orientale*, which is similar, but very inferior. At last we found it in an old-fashioned Lancashire garden, where it had grown for twenty years, and now it abounds. Left at liberty, it forms huge masses of fine foliage, handsome even when not in flower; but when the summer comes it is glorious! The flowers are carried on stiff stalks with leafy bracts at intervals, and one well-developed bract under each flower. The flowers are 9 in. across, of brightest scarlet, and each of the four petals has a square cut, deep, purple-black spot at its base inside, forming a black cross, and giving it a very distinct appearance. We have a long row of bracteatum, as well as large isolated masses, and it is also perched on the tops of our rockeries, forming most vivid scarlet masses, asserting supremacy over the *Rhododendrons* and *Pæonies*, which are also in full glory.

Next to *P. bracteatum* comes *P. orientale*. It has naked flower-stalks as a rule, but they are frequently feathered, and now and then there is a bract under the flowers. The flowers are pure scarlet, but here again there is a variety, as a good many of them have a black spot. It seems as if the *orientale* had been crossed by bracteatum, and that there were a good many hybrids abroad. The fault with this Poppy is its weaker stalk. It does not hold its large flowers erect like its rival, and is sooner over.

Mr. Wolley Dod sent me plants of *P. umbrosum* this year, and they are in flower; not, however, in proper character, so I cannot speak of them beyond saying that they are of a darker scarlet.

Papaver alpinum is difficult to keep, but it grows freely from seed, and its lovely white flowers are welcome.

P. pyrenaicum sulphureum is a most lovely variety, of a deep yellow, with pale sulphur spots at the inner base of the petals, making a pale yellow cross, just as in the black cross with bracteatum. This is the most delicately beautiful of all the Poppies. *P. nudicaule* resembles it, but without the pale centre. It grows freely, and is also easily raised from seed. Our own yellow Poppy, so common in Wales and the lake districts (*Meconopsis cambrica*), is difficult to transplant, but is easily grown from seeds. It loves odd corners, such as the angles of steps or crevices at the foot of a mossy wall, or in rockwork, and once established it spreads freely.

The Himalayan Poppies, *Meconopsis Wallichii*, with pale blue, and *nepalensis*, with pale yellow flowers, are more curious than beautiful. Their foliage is exceedingly curious, being thickly coated with yellow hairs almost like fur, and during early spring it is in this state very pretty. Later in summer it begins to throw up tall flower-stalks, which bear smallish flowers for a long time, but the plants have never been either showy or pretty with me. Probably they are so at home, and that they require a hotter climate than ours for the development of their true character. I saw *Wallichii* in flower last summer at the York Nurseries, and it was even there interesting, but not beautiful.

Brockhurst, Didsbury.

WM. BROCKBANK.

Iris olbiensis.—Of all the dwarf Irises this is, perhaps, the handsomest. It is as dwarf as *I. pumila*, or even more so; is more robust and has larger and more massive flowers of rich deep purple. In fissures in sunny rockwork, even where it is rather dry, this *Iris* grows and blooms freely, and is extremely beautiful. It is perfectly hardy.—JAS. BACKHOUSE & SON, York Nurseries.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Phyteumas.—The plant called *P. comosum* (p. 419) is certainly not that species, which I know well, both in our own garden (where it flowered last year and is now coming up again with increased vigour) and also among its native rocks in Southern Tyrol. The plant illustrated I believe to be *P. Scheuchzeri*, although I have not yet seen it, but I should be glad to be told its right name by someone more familiar with the tribe than myself. Mr. Potter's unknown plant (see THE GARDEN, p. 446) must be either *P. nigrum*, which also grows in our garden, or *P. Halleri*. Either of these would answer his description of the flower; they differ chiefly in the leaves. I believe I could make them out from a dried specimen.—H. B. H.

Bedding Pansy Alpha.—Of the many fine showy kinds of the so-called bedding Pansy, this is certainly one of the most meritorious. The habit is extremely good, the plant clinging as it were to the soil, the flowers, which are of a rich plum purple, rising well above the foliage and growing, quite early in spring, an effective mass of colour. These summer-growing Pansies are certainly most useful, as they enable all who may not have the means to raise or winter a sufficient number of tender subjects for open air decoration, to effectually embellish their gardens throughout the season at but little trouble and a minimum of expense. A dozen or so of the best Pansies and *Violas* will keep a garden aglow from early spring till autumn.—J. C. B.

Limnanthes Douglasi.—Of the many hardy annuals in cultivation, few are so hardy as this. The most severe winter does not appear to possess the power to injure it, and the seed germinates at a very low temperature. It is of a compact, but vigorous habit, a single plant covering when in bloom quite a square foot of soil; it should therefore be allowed quite that space for development. Unlike the generality of annuals, it neither requires a deep nor rich soil, but thrives admirably where the natural staple is poor and inclined to burn in the early summer months, a fact which renders it valuable for planting on dry banks or similar situations, flowering of the two more freely thus placed than when growing in rich soils.—J. C. B.

Variegated Winter-cress (*Barbarea vulgaris* fol. var.).—Mr. Scott, of Merriott, found this plant growing in good sandy soil where formerly an old hedge stood. Is a variegated variety of the Winter-cress a rarity? or have some of your readers seen it before? There is, besides the variegation, a marked difference between the type and variety, inasmuch as in the latter the lateral and terminal lobes of the lyrate leaves are much wider and more obtuse. The stems and petioles, as in the type, are much furrowed. I have been acquainted with it now for about five years, and I find that quite two-thirds come true from seed. When it becomes a large plant the green and white foliage, combined with the yellow inflorescence, renders it very effective for mixed borders.—W. ROBERTS, Merriott.

Perennial Yellow Lupine.—*Thermopsis rhombifolia*, a native of the Upper Missouri and Rocky Mountains, may well bear this name. Its large bright yellow Lupine-like flowers, which form erect open spikes of from twelve to twenty blooms on stems from 9 in. to 15 in. high, are highly ornamental. The plant will apparently grow in any soil or situation. It is so tenacious of life that the only danger is of its becoming too free. It creeps underground like Couch or Twitch Grass, and is one of the plants that every one can cultivate, though as yet rare. No frost harms it.—JAS. BACKHOUSE & SON, York Nurseries.

Iris missouriensis.—We send you herewith a cut flower of the true *Iris missouriensis* (Nutt.)—*Iris Tolmieana* (Herb.). We have been much puzzled with this species; we imported it two years ago, but now it is thoroughly established and flowering profusely. We have submitted specimens to Mr. Baker, who has cleared up the point for us. It has never been figured, Mr. Baker says. It is quite distinct from *I. prismatica* and *I. longipetala*, which flowered much later, and we have had these two for years, so without doubt we can speak confidently on that point.—F. HORSMAN, Colchester. [A delicately marked species, not possessing much claim for garden cultivation.—ED.]

Hedysarum gyrans (A Self-moving Plant).—I see that some of your correspondents mentioned this lately in THE GARDEN, under another name, but the description of it was sufficient for me to identify an old acquaintance, which in 1830 was thought to be one of the greatest curiosities known amongst plants, the Sensitive plant being then not so well known as it is now. The spasmodic motions of the Moving plant were as little known then as they seem to be now; its motive power was attributed to the sun, and the plant was always kept in the sunniest place in the stove, and I think its movement was not much looked for except on bright days, when its action could be reckoned on as so much per minute, and was a wonder not to be disregarded in those days.—R.

Violas and Pansies.—The appellation *Viola*, as applied to the various garden hybrids of the *Viola* family, is now misleading; *Viola cornuta*, *Munbyana*, and similar species will long find a place in the alpine garden, and are not Pansies, but the various so-called Violas are really Pansies. Fancy or Belgian Pansies, show or English Pansies, are well understood definitions of sections, and so also are bedding Pansies, most of which have grown up from out of the *Viola* proper, but have largely the bloom of the Pansy with the original *Viola* habit. It would be wise to confine the term *Viola* to recognised species only, and term all others fancy, show, bedding, or border Pansies, as the case may be.—A. D.

SEASONABLE WORK.

Flower Garden.—By this time the planting of the beds will have been accomplished, and the next important operation, that of pegging down such straggling growers as *Heliotropes*, *Petunias*, and Ivy-leaved *Geraniums* will follow. At the present time the weather is very hot and dry, and, as a natural consequence, unfavourable to the starting of soft-leaved plants which have not been grown in small pots, but by placing small twigs of Yew amongst them and sprinkling overhead every night they may be prevented from going back until we have another fall of rain. Look well to all tall growing sub-tropicals and see that they are well staked before they receive injury from wind or wet, indeed, the safest and most expeditious way is to arrange the stakes and plant to them. Give copious supplies of water immediately after planting. Mulch and use some dwarf-creeping plants for covering the ground. Next to well arranged beds may be placed well kept turf, walks, and edgings, and as the first is already showing signs of suffering from drought that portion at least which forms the "setting" for the flower beds should be well flooded to keep the grass in a growing state. Box edgings may be clipped at any time, but showery weather answers best. Hardy herbaceous plants now growing rapidly must have careful attention to thinning, tying, and watering. It is a common mistake to allow old stools of *Delphiniums* and other indispensable favourites to throw up too many flower stems when the duration as well as the quality of the bloom is curtailed. After the severe castigation of the past winter the pruning and clipping of shrubs and evergreen hedges may be deferred until we have a change to showery weather.

W. COLEMAN.

MARKET GARDEN NOTES.

AN element of disappointment creeps into our survey of market gardens just now. The great promise of the early spring is not being fulfilled, and the crops are far from being what has been anticipated. For the past two or three seasons the fruit crops have generally been poor, and only in exceptional cases has money been made. The men who have several strings to their bows have perhaps been better able to pull through than those who depend solely upon one kind of crop; and if from amongst hardy fruits, Peas, Potatoes, cut flowers, or market roots, something did not prove remunerative it would have been hard indeed. This season was to have been a great fruit year. Indications are not wanting, hereabouts, to show that this will not be realised. The crop has been moderating largely during the past few weeks, for under the influence of hot scorching suns, a lengthened drought, and keen wind, not only has the swelling fruit been much checked, but a very large portion of what appeared to be sound has fallen and in many cases left the crop quite thin. Added to these mishaps the heat and drought have generated fly, and consequently maggot and blight is abundant, so that things by no means wear a roseate aspect. The great want is a heavy washing rain of a week's duration, so that the moisture might get down to the roots, and give them a thorough soaking, and also wash and cleanse the trees from insects; were this to be the case early (and at the present time of writing rain is threatening), a fairly good crop might be saved and the trees vastly benefited. In such case perhaps a moderate crop would not represent so much loss, because the fruit would be finer, and the price more remunerative. Still even that result is entirely contingent upon the weather. But the sharp frosts and bitterly keen winds of early April did great mischief, there can be no doubt; even unopened flower buds were badly hit, and have shown that they were so by falling. We have had the finest season's bloom on all hardy fruit trees perhaps ever seen, but the result will be far from commensurate.

Gooseberries and Currants.—Owing to the comparatively late period at which Whitsuntide fell, there were plenty of Gooseberries for the pies and tarts of holiday people, and, indeed, there had been plenty in the market for the preceding fortnight. Having a lively remembrance of the havoc wrought amongst the bushes by the pestilent caterpillars last year, growers have been hard at work gathering, even though the fruits were not more than half grown, and many thousands of sieves and half sieves have gone to market. The price is fairly remunerative, but the loss to the public is considerable, because this early gathering may be said to reduce the crop one third of what should be its natural bulk. The early appearance of the caterpillar again this year has created some alarm although every effort was made to cope with them. Suddenly, however, they disappeared, and it is hoped if a good rain comes that they will not return. Hellebore powder may be a strong destructive

agent, but it is a dangerous one, and no one would like to eat the fruit from bushes which had been dusted with it. Fortunately our market growers do not use such a dangerous compound, but many do largely use soot, which if not dangerous is very nasty. It was the growers' expectation that rain would come and wash it off the bushes and fruit before the time for picking came, but it has not, and the unfortunate women who have had to gather the fruit have gone home at night looking very much like chimney sweeps. Still the fruit looked little the worse for the dressing. The general loss of foliage produced last year by the caterpillars could not but affect the fruiting properties of the young wood; that was evident in the winter when pruning was in progress, as the growth was weak and lacked robustness. To this, no doubt, is largely due the fact, to which abundant testimony is now borne, that the Gooseberry crop is far from being so large as was anticipated. Though the Currant crop looks well, yet it is so very much dependent upon the weather that it will be unwise to prospect largely upon it. Black Currants ought to be a heavy crop, but from drought some of the bunches are already thinning.

Potatoes and Peas.—Out in the open fields vegetables do not look promising. Potatoes, in most cases late planted, are coming thinly, or irregularly and slowly. In dry soils the sets went in dry, and there has not been found enough of moisture to start them into growth. In heavy lumpy soil the surface is so hard that the growth finds it difficult to force its way through. A rank grower like the Champion perhaps makes light of this difficulty, but it very much affects the weaker kinds. The fine-toothed harrow renders great assistance, and when the rows are fairly visible, the horse hoe soon renders the surface light and loose, and keeps weeds in check. Still the plants are late, and with the latest planted kinds there will be but little chance for a crop of tubers if the disease sets in early. There is no present prospect that the Potato crop will at all approach to the fine produce of last year. Early Peas are short, thin, and late. Generally in the fields there will be few fit for market till about the third week of the month, and unless rain soon comes these will be small. Already the leaves begin to look yellow, and the blooms fall prematurely. On dry soils, where an average season gives good crops, the growth does not exceed 15 in., though in full bloom. Such a crop as is likely to follow will hardly pay for gathering, except that the market price will, no doubt, be considerably enhanced. West Middlesex, in spite of its approximation to the Thames valley, is a dry locality, and in such a season as we now have, soon exhibits the want of moisture. It is not probable that any big fortunes will be made through Peas this year.

Other Crops.—Between the end of the winter Greens, and these were few indeed, and the incoming of the Peas there is a long interval that it is difficult to bridge over, and indeed could not be, but for the much abused foreigner. What our vegetable markets would be like without his help, during such a season as the present may we be for ever spared having practical knowledge of. Of autumn planted Cabbages, a large quantity have bolted to seed, a natural result of such a severe winter, whilst what stood have mostly been pulled and bunched long since to make way for other crops; 2s. 6d. per bushel, was paid on the ground but the other day for stuff of this kind, mere heads of leaves without hearts. What the consumer would have to pay for a boiling may well be imagined. The growers are doing their best to make the interregnum of abstinence from green vegetables, as short as possible, and to this end have largely sown Broad Beans, dwarfs and runners. Early sown summer Spinach is a useful vegetable to catch crops but does not seem to find favour, and though winter Onions stood well, and spring sown kinds are fairly abundant they hardly take the place of Broccoli or spring Cabbages, whilst Asparagus, delicious and tender to the palate, yet easy to cultivate, is not a vegetable for the million. It has not been a good time for Radishes and Lettuce, the soil has been too harsh and dry. If the hot dry time has at length had its temporary fling and a season of rainfall is come we shall, as a matter of course, soon find plenty of good vegetables, for the land under cultivation of market crops is enormous.

Later Notes.—Since the above notes were written a heavy rainfall has taken place all through this district, and necessarily has been productive of great good. A heavy washing rain, just what was needed, has well cleansed the trees and bushes, and assisted the Strawberries immensely. Still it would be idle to suppose that the result of this isolated rainfall can be of a permanent character unless more rain follows, as the soil is yet ill prepared to withstand the demand of such weather as usually marks July and August. Moreover, the rain has been alloyed by cold winds, and, for June, extremely cold nights, showing in the early morning white frosts. Our great need is more warmth and more rain. With these garden crops will speedily change for the better; without them we cannot hope for a very prosperous season.

A. D.

NOTES FROM HANDCROSS PARK.

THOSE who frequent the larger of the London flower shows are probably familiar with the grand specimen plants that are annually exhibited by Mr. Rann, from Mr. Warren's beautiful Sussex garden at Crawley, where cultivated plants, both out-of-doors and

possible to the roof, in order to bring the leaf colouring in its best form. Some of the plants in this house are 5 ft. and 6 ft. through, and are all in vigorous health, and exquisite as regards colour. Among the finest are *C. Hendersoni*, *interruptum*, one of the grandest of all, the old variegatum, *volutum*, a fine plant, multicolor,

Youngi, and *angustifolium*, an extremely fine pyramidal specimen. Of the newer kinds there are smaller examples in the same house; for instance, *Challenger*, *princeps*, *Prince of Wales*, *Morti*, *superbiens*, and *chrysophyllum*, *Williamsi*, *albicans*, a noble variety with broad, handsomely variegated leaves. In other houses and pits there are numerous others, principally new varieties, amongst which that named *Warreni* is undoubtedly the finest of the long pendulous kinds, the leaves being beautifully mottled with green, crimson, and yellow, and curiously, yet elegantly, twisted, and droop in such a gracefully fountain-like manner. The other kinds are too numerous to specialise, and though some kinds are not very dissimilar to others, yet if they have any distinguishing character it is brought out fully here by skilful culture. We have never met with a more thoroughly representative collection hitherto, and it fully bears out what we have before remarked, that in order to get beyond mediocrity with any one class of plants it is necessary to treat them specially, and make it pre-eminent.

Ferns.—As with the Crotons, so with these, unusually fine examples are represented, particularly of *Gleichenias*, notwithstanding that they are difficult to manage. They are now beginning to assume their best aspect, as they have a profusion of young fronds nearly matured. Three huge specimens of *G. Mendelli*, *rupestris glaucescens*, and *microphylla* are especially noteworthy for robust growth; they have rounded heads some 4 ft. or 5 ft. through, and on the top a complete mass of delicate young fronds, which, viewed from above the plants, is a beautiful sight. No adequate idea of such beauty can be obtained in an exhibition tent, as the plants must necessarily have the fronds tied in so as to admit of being transmitted safely. Among other Ferns of remarkable size are *Adiantum farleyense*, *Davallia Mooreana*, both grand examples in huge pots; *Cyathea dealbata*, *squarrosa*, *medullaris*, *princeps*, *Burkei*, *Dregei*, all superb specimens; while of Cycads there are fine plants of *C. circinalis* and *C. revoluta*; the latter in a spacious tub is just developing a spreading head of new leaves.

Palms.—The majority of these occupy a lofty house in the centre of the principal range, and although not remarkably large, are of a useful size for exhibition and general decorative purposes, and all indicate robust vigour. Among the most noteworthy are *Areca sapida*, an extremely handsome New Zealand species having large, erect, pinnate leaves produced from a common



Cypripedium euryandrum.

under glass, may be seen in wonderful variety. It is, however, more particularly to the fine-foliaged plants and Ferns that we wish to confine our remarks. These are wonderfully well grown, especially the Crotons, of which there are here nearly every species and variety in cultivation. To these Crotons a span-roofed house is devoted. The largest plants are elevated as near as

centre; *Cocos Weddelliana*, the most graceful of all Palms, there is a fine plant some 5 ft. in height, with an elegantly spreading head of its feathery foliage; various other species of *Chamærops*, *Phoenix*, *Latania*—giving this house a most imposing appearance, which would be greatly increased were it not so crowded. Of other fine foliaged plants, there are some remarkably fine examples of *Spathiphyllum pictum*, a handsome-leaved Aroid; *Dieffenbachia illustris*, one of the best of the species; *Phyllanthus roseopictus*; various *Anthuriums*, *Dasyliro glaucum*, &c. There is also a good collection of Orchids, amongst which were in flower *Saccolabium giganteum*, *Thunia Bensoniæ*, *Odontoglossum Roezli album*, *Anguloa Clowesi*, all fine species.

Specimens of flowering, stove, and greenhouse plants are now engaging some attention here, and already there are some fine examples, which, no doubt, will find their way to the exhibition tents in London this season. Of those in fine condition there are splendid examples of *Clerodendron Thomsoni*, *Aphelaxis purpurea*, and other forms, *Erica depressa*, *ampullacea*, *Lindleyana*, and others, *Bougainvillea glabra* and several *Allamandas*, while among those to flower are *Stephanotis*, *Statice*, *Ixoras*, *Hedera*, &c.

There is also a good collection of succulent plants, such as *Agaves*, *Aloes*, *Bonaparteas*, &c., and likewise of Pitcher plants, which are grown remarkably fine. On one plant of *Nepenthes Hookeriana* we counted more than a score of fully developed pitchers. Everywhere in the garden or pleasure grounds one is impressed with the wealth of exotic growth, and all is uniformly maintained in a high state of perfection.

W. G.

ORCHIDS.

CYPRIPEDIUM EURYANDRUM.

THIS is one of Messrs. Veitch's hybrids, the result of crossing *C. barbatum* with *C. Stonei*. The sepals come near those of *C. Stonei*, but the upper one is blunter; the petals are much longer than those of *C. barbatum*, but shorter than those of *C. Stonei*; the lip is larger than that of *C. barbatum*. We may add that the plant is of robust growth, and has bold, deep green, faintly tessellated foliage. The flower-scapes, which are stout and hairy, each bear two or three flowers.

ORCHIDS IN FLOWER AT KENWOOD.

IN Mr. Corning's garden, the Orchids just now are especially gay. The summer-blooming *Cattleyas* are now at their best; of *Cattleya Mossiæ* there are about 200 blooms open, and these are of every conceivable shade of colour, from white to an almost deep crimson. The most distinctive sorts are alba, with white sepals and petals, lip white, with a blotch of rose shaded with orange; *Rathbonei*, measuring 9 in. across, sepals and petals of a deep rose, with a broad lip of deep crimson margined with white, and an orange throat; *Menandi*, light rose sepals and petals, lip rose veined with crimson, throat lemon colour; *aurantiaca* is conspicuous for its deep orange throat, extending into the lip; *Mendelli* is almost as prolific in varieties as *Mossiæ*, the most noteworthy being a pure white form which this year for the first time being a seedling imported among a lot of *Mossiæ*; *Wagneri*, another white flowered *Cattleya*, with a lemon coloured throat, has four flowers. The summer blooming *labiata* are now at their best, as are almost the speciosissimas; *luteola*, though small and inconspicuous compared to its congeners, when grown in large masses is quite a showy plant, and as many as thirteen to sixteen flowers on a spike. The *Lælias* are well represented by *Wolstenholmei*, *Pilcheri*, *Schilleriana*, and *majalis*. In the *Phalænopsis* house, notwithstanding the season is past for a great show of bloom, there is quite a good sprinkling of bloom. Of *amabilis* there are 50 to 60 spikes; also a few of *Schilleriana* and *grandiflora*, *Manni*, *cornu-cervi*, and *rosea* are past their best; *Luddemanniana*, *Corningiana*, *sumatrana*, and *Parishi* are just opening. Of *Vandas* there are a few, as *suavis*, *Meleagris*, *Corningi*, *gigantea*, *cœrulescens*, *Boxalli*, *teres*, and its variety *Andersoni* blooms very freely every year by giving it abundance of heat during the growing season, and subjecting it to a temperature in winter of 40° to 45°, with little or no water. *Batemani* is throwing up its large, arching spikes of violet-speckled flowers. Among the best of the *Saccolabiums* at present in bloom are *Holfordi*, *guttatum*, *Blumei* and its var. *Dayi*, *curvifolium* and its var. *moulmeinensis*. Among the *Aerides* are *quinquevulnerum*, *crassifolium*, *Lobbi*, and *Day's* var. of *Fieldingi*, as also the type; this class appears to luxuriate in the strong heat of the American summer, and also likes abundance of water, in fact, never ought to be dry if spot is to be

avoided. This also applies to *Phalænopsis*. There is quite a fair show of *Cypripediums*, consisting of the handsome hybrids *super ciliare*, *vernixium*, *selligerum*, *Domini*, and *Swanianum*; *villosum*, with its near ally *Boxalli*; the seldom-bloomed *lævigatum*, *niveum* with three flowers on a stem; also the spotted variety of *barbatum*, with many of its numerous varieties; *Roezli*, and lastly *Lawrenceanum*, with the finest foliage of the whole genus. *Cœlogyne pandurata*, though not a showy kind, is interesting on account of the deep black markings on its otherwise green flower; it is a very free grower, and generally blooms twice a year; but near to it, and contrasting in colour, is the handsome *Mas-sangeana*, with a pendulous spike of twenty-two flowers. The *Dendrobiums* are not to the fore just now, though a lot of noble assist to render the show house gay. *Dayanum*, *McCarthyæ*, and *albo-sanguineum* are fine large flowering kinds; the *giganteum* of *Falconeri* is quite an improvement on the type; others are *Jenkinsi*, *Paxtoni*, *transparens*, and *crystallinum*. Among the *Oncids* are *obryzatum*, with 300 flowers on a spike; the gayly-flowered *concolor* and *sarodes* contrast with the lilac hues of *neurale majus*; others of lesser note are *peticanum*, *unicorne*, *flexuosum*, *Forbesi*, and *Krameri*. *Broughtonia sanguinea* should be grown by every one on account of its distinct colour and free blooming quality. A few *Epidendrums* are out, such as *Parkinsonianum*, which succeeds best on a block in the Indian house; the ever-blooming *erectum*, the fragrant *aromaticum*, and a species from Brazil with a bulb like *paniculata*, fleshy leaves, and a large thyrse of large white flowers. *Chysis Limminghi*, *bractescens*, and *lævis*, these we find do best with abundance of heat and moisture in growing season; the flowers of *Sobralia nana* as large and handsome as the *macrantha*, and more valuable on account of its requiring less room. Others in flower are *Phaius Wallichii*, *Camarotis purpurea*, *Calanthe Domini*, *Lycaste Skinneri*, and *Odontoglossum citro-mum*; the latter kind is found to do best with the *Dendrobies*. In the cool there is a very meagre display; a few species are worthy of note, as *Masdevallia Backhouseana*, *radiosa*, *trochilus*, *Estradæ*, *Harryana*, *igneæ*, a few *Odontoglossum Alexandræ* and *Pescatorei*, *O. niveum*, *cirrhosum*, *vexillarium*, *Reichenheimi*, and *Promæna stapelioides*.

F. GOLDRING.

Albany, N.Y.

O. chids in Flower at Glasnevin.—The following are now in great beauty in the Botanic Garden here, viz.:

<i>Aerides Lindleyanum</i>	<i>Epidendrum cochleatum</i>	<i>Oncidium crispum</i>
<i>Brassia verrucosa</i>	<i>macrochilum roseum</i>	<i>flexuosum</i>
<i>Camarotis purpurea</i>	<i>Jælia purpurata</i>	<i>Kramerianum</i>
<i>Cattleya citrina</i>	<i>Lycaste cruenta</i>	<i>obryzatum</i>
<i>labiata</i>	<i>Masdevallia civilis</i>	<i>Philipsianum</i>
<i>Mossiæ</i>	<i>Harryana</i>	<i>sarodes</i>
<i>Warneri</i>	<i>igneæ</i>	<i>sphacelatum</i>
<i>Cypripedium barbatum</i>	<i>Lindeni</i>	<i>Phalænopsis Parishii</i>
<i>Dominianum</i>	<i>polysticta</i>	<i>rosea</i>
<i>Hookeri</i>	<i>Veitchi</i>	<i>Pholidota imbricata</i>
<i>Lawrenceanum</i>	<i>Maxillaria Harrisoniæ</i>	<i>Saccolabium ampullacea</i>
<i>longifolium</i>	<i>tenuifolia</i>	<i>curvifolium</i> [ceum]
<i>niveum</i>	<i>Meosopindium vulcani</i>	<i>guttatum</i>
<i>Veitchi</i>	<i>Miltonia festiva</i> [cum]	<i>retusum</i>
<i>villosum</i>	<i>Odontoglossum Alexandræ</i>	<i>Stenia fimbriata</i>
<i>Dendrobium Farmeri</i>	<i>Cervantesi</i>	<i>Trichopilia crispa</i>
<i>Jamesianum</i>	<i>cirrhosum</i>	<i>Uropedium Lindeni</i>
<i>suavissimum</i>	<i>citrosimum</i>	<i>Vanda teres</i>
<i>Epidendrum alatum</i>	<i>triumphans</i>	<i>tricolor</i>
<i>ciliatum</i>	<i>vexillarium</i>	<i>suavis</i>

—F. MOORE.

Dendrobium Falconeri giganteum.—This variety is a decided improvement in several respects on the typical kind. The flowers are somewhat larger and more brightly coloured, and the stems, or more correctly pseudo-bulbs, which in the original are extremely slender, are in this variety considerably stouter and of a more erect growth. The chief character, however, and a most important one too, is that while the flowers of the ordinary kind only retain their beauty for some five or six days, those of the variety *giganteum* last fully three weeks in good condition. It may now be seen in flower in the Royal Exotic Nursery, Chelsea, where also the following are in flower.

Phalænopsis sumatrana is a new and very handsome species in the way of *P. Luddemanniana*, though quite distinct from it as regards the colour of the flowers, which are, however, of about the same size. The sepals are heavily barred with rich, brownish-chocolate on a pale ground, while the lip is a rich, deep amethyst, tipped with a tuft of white down-like hair. The leaves are long and broad, thin in texture, and of a deep green. Among the more noteworthy of the hosts of Orchids in flower are *Dendrobium infundibulum*, with a dozen flowers in one cluster; *D. lasioglossum*, a rare kind with white semi-transparent flowers; *Lælia purpurata Russelliana*, a very fine variety; *Cypripedium selligerum*, a handsome hybrid, and a fine variety of it named *majus*; various *Odontoglossums* and *Masdevall-*

lias, notably among the latter *M. coccinea*, which is far finer than its ally *M. ignea*, being larger and much finer in hue.

Cattleya Wagneri, one of the finest white *Cattleyas* grown; its flowers are as large as those of an ordinary form of *Mossiae*, and there is nothing to mar the chaste purity of the flowers save a blotch of orange yellow in the interior of the lip. *C. Mardelli*, a splendid hybrid, is also in flower. It is a cross between *C. speciosissima* and *Devoniensis*, but very distinct from either; the lip is broad and of an intensely rich amethyst white; the sepals are of a duller hue, but highly attractive. *C. Mossiae alba*, with almost pure white flower, is another very lovely kind in flower, as are likewise numerous fine varieties of *C. Warneri* and *Mendelli*, some of the latter being particularly fine.—W. G.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 14.

THE plants shown on this occasion were few in number compared with the extensive displays represented at previous meetings this season, but amongst them there were several new plants, and some of high merit.

First-class Certificates were awarded to the following:—

Mr. E. G. Loder, Weedon, Northampton, for—

Echinocereus Fendleri.—A hardy Cactaceous plant from Colorado, having flowers, when fully expanded, some 4 in. across, and of a beautiful rosy-purple hue. **E. gonacanthus**, with much smaller flowers than the preceding; of a deep red colour, but produced very numerously on globular stems beset with stiff spines.

Mr. G. F. Wilson, Heatherbank, Weybridge, for—

Lily Scott Wilson.—A highly interesting hybrid, the result of a cross between *Lilium Washingtonianum* and one of the *pardalinum* section. It partakes strongly of the foliage of the former, but the flowers, which are 3 in. across, are pale yellow, copiously spotted with chocolate, and flushed on the upper half of the petals with red, after the manner of *pardalinum*.

Messrs. J. Veitch & Sons, Chelsea, for—

Hydrangea Mariesi.—A beautiful Japanese plant recently introduced; remarkable for the lovely blue colour of its huge heads of sterile flowers, which resemble those of *Hortensia* in general appearance. If the colour is permanent it will be a valuable acquisition.

Sarracenia melanorrhoda.—A hybrid raised between *S. purpurea* and *S. Stevensi* (itself a hybrid). The progeny partakes of the character of both parents in a striking manner. The pitchers are sub-erect, not so large or wide as those of *S. purpurea*, but very highly coloured with deep blood red.

Cypripedium selligerum majus.—A variety of a handsome hybrid Lady's Slipper, raised between *C. barbatum* and *C. laevigatum*. The flowers are much larger than those of the original form; the colour reminds one of that of *C. barbatum*, but the upper sepal is whiter and more distinctly marked; the lateral sepals are likewise of a brighter hue.

Messrs. J. Laing & Co., Stanstead Nurseries, Forest Hill, for—

Caladium Mithridate.—A distinct and handsome variety, with large leaves of a rich deep crimson, margined with deep green. **C. J. R. Box**.—With semi-transparent leaves of a reddish-white hue, feathered and veined with crimson; a very effective variety. **C. candidum**.—Another beautiful kind, with deep green leaves, blotched and spotted with pure white in a very elegant manner.

Mr. J. King, gardener to Mr. Simpson, Wray Park Reigate, for—

Coleus Miss Simpson and C. Mr. Stedall.—Both extremely fine varieties, quite distinct from and a decided advance on existing varieties. The former has leaves of a bright crimson, margined with a gold band. The other has leaves of a brilliant carmine in the centre, then a zone of emerald green, and a band of golden-yellow along the coarsely-toothed edges.

A choice group of new or rare plants from Messrs. Veitch included *Clematis coccinea*, with flowers brighter in colour than has yet been exhibited and approximating nearer to our coloured plate of the plant than the flowers exhibited before; *Heliconia aureo striata*, a handsome fine-foliaged plant; *Dendrobium Falconeri giganteum*, remarkable for the large size of the bulbs; *Cattleya Wagneri*, a pure white *Mossiae*-like flower with yellow blotch on the interior of the lip; *Lilium Krameri*, finely coloured; *Masdevallia coccinea*, a beautiful species with bright purple-crimson flowers; *M. ignea*, with highly coloured flowers; *Phalænopsis sumatrana*, a species of the Lud-

demanniana type, but with brighter coloured and more distinctly marked flowers; *Zephyranthes macrosiphon*, a pretty bulbous plant, having deep rosy flowers; *Cypripedium selligerum majus*, the finest flowered variety of this handsome hybrid yet shown; *Calanthe Textori*, a species in the way of *C. veratrifolia*—both the flowers are flushed with pink, and there is an orange red crest on the lip; *Epidendrum falcatum*, a species in the way of *E. Parkinsoni*, but with more white flowers of very singular shape; *Pratia angulata*, a pretty creeping dwarf plant, with pure white flowers similar to the ordinary bedding *Lobelia*s; *Hydrangea Mariesi*, a variety in the way of *H. Hortensia*, having a huge cluster of bluish-purple sterile flowers; *Carnation Lady Musgrave*, a fine tree variety with large rosette-like blossoms of a deep crimson; *Spergula pilifera aurea*, a golden-leaved variety of a common plant; *Cattleya Mossiae alba*, an almost pure white form, very delicate and showy; *Begonia Davisi*, and a group of seedlings raised from that species; *Azalea indica Souvenir de Prince Albert* (white variety), a pure white form of this fine *Azalea*, very beautiful and distinct.

Mr. Loder, Weedon, Northampton, again exhibited his fine collection of hardy plants, each numbering about 50 plants, among which were *Echinocereus Fendleri*, a large flowered species of a delicate purplish rose hue; *E. gonacanthus*, a smaller flowered species having deep red funnel-shaped flowers; and *E. viridiflorus* with small green flowers; also the handsome *Agave geminiflora filifera*.

A fine group of *Begonias* were shown by Messrs. J. Laing & Co., Forest Hill Nurseries. It included *Exoniensis*, a large flowering fine form of a brilliant scarlet hue; Robert Whyte, also large and fine, but of a softer tint than the last; Captain Lambert, a robust and free flowerer with brilliant crimson bloom of fine form; *Campaniflora*, a double white kind, but shown in a poor condition. A collection of cut blooms accompanying the plants contained some wonderfully fine examples. The same exhibitors also showed *Coleus Stanstead Rival*, with brightly marked foliage coarsely toothed at the edges; also *Caladium Gerard Dow*, *Madame Lemoinei*, *Candidum*, all beautiful varieties.

Mr. Croucher, gr. to Mr. Peacock, Sudbury House, Hammersmith, showed *Cattleya Mossiae aurosa*, a splendid variety having deep lilac sepals and a large and finely fringed lip with conspicuous blotches of golden yellow interspersed with streaks and pencillings of amethyst; *Odontoglossum crispum delicatum*, a superb variety bearing large flowers of delicate whiteness, with only a chocolate blotch on the lip to mar its purity. The plant bore two spikes, one having a dozen expanded flowers. A vote of thanks was accorded to the exhibitor. Mr. James, Lower Norwood, sent *Odontoglossum cordatum aureum*, a variety without the usual chocolate markings on the flowers, which are of a pale green, the lip being suffused with white. Besides the Lily mentioned above Mr. Wilson also showed *L. Parryi* and *Alice Wilson*; likewise *Arum crinitum*, one of the most singular of the tribe in cultivation.

A vote of thanks was accorded to Mr. Wilkinson, Firlie Place, Lewes, for a collection of cut bloom and seedling *Gloxinias*, chiefly of the horizontal flowered type. Seedling *Gloxinias* Miss Mabel Scott and Miss Mary Scott were also exhibited by Mr. Lyon, Sunridge Park, Bromley. The plants were finely grown, but the varieties were not remarkable. Mr. Edwards, Blackheath, sent a fine variety of *Cattleya gigas*; and Mr. Voss, Mountford House, Streatham, *Odontoglossum citrosum Vossi*, a remarkably fine variety, having large flowers with lips of a rosy purple, margined with a darker hue.

Messrs. Cannell & Sons, Swanley, exhibited an uncommonly fine collection of *Pyrethrums*, numbering some 200 blooms, representing about fifty varieties. The finest of these were *Imbricatum plenum*, *La Vestale*, *Lizzie Macfarlane*, *Uzzel*, *Mdlle. Benary*, *Wilhelm Kramfen*, *Mdme. Billard*, *Le Dante*, *Prince of Wales*, *Diana*, *Boule de Neige*, *Mons. Barral*, *Mrs. Dix*, *Virginal*, *Progress*, *Amphitrite*, *Royal Standard*. The above selection would comprise a representative collection of the best varieties, all very fine. A vote of thanks was accorded to the exhibitors. The same exhibitors also showed a fine collection of spikes of *Foxglove*, which were very fine. A collection of cut blooms of *Pansies* and a few single *Pyrethrums* were sent by Mr. Hooper, Vine Nursery, Bath.

Among the most beautiful of the exhibits were two stove-climbing plants, *Stigmaphyllon ciliatum* and *Banhinia corymbosa*, both of which were exhibited by Mr. Green, from Sir George Macleay's garden at Pendell Court, Bletchingley. The first has large bright yellow flowers, borne numerously in long slender wreaths, which hang in graceful profusion from the roof of the house. The other is a very rare species with small pinnate leaves and large terminal clusters of rosy-pink flowers, which remind one of the beautiful *Lagerstromia indica*.

Fruit.—Several Melons were shown on this occasion. Mr. Gilbert, Burghley, showed a seedling named *Burghley Pet*. It is a green-fleshed fruit considered by the committee to be a promising

kind, and they desired to see it again; also Melon Richard Gilbert. Messrs. Cheal & Sons, Lowfield Nurseries, Crawley, showed a pair of handsome oval fruits of a sort called Shepherd's Model, which were scarcely in condition for judging of their merits. A seedling Melon, a cross from Read's Scarlet Flesh, was shown by Mr. Wilkinson, Firle Place, Lewes, but was passed over by the committee. Mr. Woodbridge was awarded a cultural commendation for a splendid dish of British Queen Strawberries. Tomatoes Gilbert's Criterion and the Conservative Chief were shown by Mr. Gilbert. Cherries Noire Précoce de Strass and Early Lamaurie were shown from the Society's garden at Chiswick. The first is very prolific, but deficient in flavour; the other is better in flavour. Messrs. Rivers & Son, Sawbridgeworth, exhibited Plum Early Favourite from a pot tree put into the house about the end of March. It is a black variety in the way of Rivers' Prolific; also Nectarine Lord Napier. The same exhibitors were awarded a first-class certificate for Cherry Guigne d'Annonay. It was grown in an unheated orchard house with May Duke, which was also shown; the certificate was awarded on account of its earliness. Mr. Stevens, Trentham, again exhibited his Trentham Early Fillbasket Tomato, which is remarkable for its extreme productiveness, which will make a fine market garden sort. The huge Rhubarb Stott's Monarch was shown by Messrs. Veitch. It is the largest variety grown, and will be found especially useful for preserving and similar purposes. Mr. Gilbert showed Sutton's Golden Gem Lettuce which had been sown on March 1. It seems to be a first-rate early sort.

In the Conservatory were some fine collections of Orchids. Mr. Croucher showed from Mr. Peacock's garden, Sudbury House, Hammersmith, a group comprising *Odontoglossum vexillarium* in great variety, some being remarkably fine, the bloom highly coloured and large; *Masdevallia Harryana* also in splendid variety, among which were sanguinea and virescens, *M. ignea*, the rare *M. Backhouseana* with three or four flowers; *Odontoglossum Uro-Skinneri*, not commonly seen; *Brassia verrucosa*, fully grown; *O. crispum delicatum*, *Oncidium ampliatum majus*, very fine, and superbly flowered plants of *Lycaste Deppei*. A silver Banksian medal was awarded. Mr. Ebbage, gardener to Mr. Bockett, Stamford Hill, showed a grand group of *Odontoglossum crispum*, representing numerous varieties, all very finely grown, and bearing long arching spikes of flowers. These, some thirty in number, were tastefully grouped with Ferns and Selaginellas, and were highly attractive, and a silver gilt Flora medal was awarded.

Mr. James, Norwood, had a miscellaneous group of Orchids, among which the most conspicuous were *Epidendrum vitellinum majus*, *Odontoglossum vexillarium crispum*, the rare *Vanda Denisoni* with a spike of five flowers; *Dendrobium suavisimum*, *Oncidium sessile*, *Cattleya Mossiae* in variety, and a plant of *Anthurium Andreanum*; and Messrs. Barr & Sugden, Covent Garden, exhibited an extensive collection of German, Spanish, and English Irises, Pyrethrums, Lilies, Pæonies, Ranunculi, Ixias, and Sedums, &c. Among these were interspersed such rarities as *Anemone palmata alba*, *Brodiaea coccinea*, *Griffinia Blumenavia*, *Cyclobothra alba* and *pulchella*, *Brodiaea gracilis*, *Bletia acutiloba*, *Pentlandia miniata*. A silver medal was awarded to this fine group, and a similar distinction was given to Mr. Hooper, Bath, for a large collection of Pansies, Pyrethrums, &c. Some fine groups of plants from the Society's garden were noteworthy, especially a group of *Gloxinias* and Maiden-hairs, which added to the attractions of the display.

Pelargonium Society.—On this occasion this society adjudicated upon exhibits submitted to it before the annual show, which takes place on the 28th instant. Five kinds were exhibited, viz., *Empress of India*, a pink zonal shown by Mr. Kimberley, Stoke Nursery, Coventry; *Robert Fortune*, a fine double Ivy-leaved variety; *Empress, Charles Darwin*, and a seedling (No. 29) raised by M. Victor Lemoine, Nancy. The four latter kinds were shown from the Royal Horticultural Society's gardens, and first class certificates were awarded to

Charles Darwin (Lemoine).—A zonal variety, with a fine truss of double flowers of a rich carmine violet, similar in tint to that of the single zonal *Dr. John Denny*. It appears to be a robust grower and of fine habit.

Double-flowered Ivy-leaved (No. 29) (Lemoine).—A beautiful hybrid variety, having the habit and growth of an Ivy-leaved sort, and with large trusses of perfectly double flowers of a pleasing rosy pink hue.

Both of the foregoing varieties likewise received first-class certificates from the floral committee of the Royal Horticultural Society.

Lecture.—The Rev. G. Henslow commenced his lecture by describing the *Sarracenia*, a hybrid, *S. melanorhoda* of Mr. Veitch's having received a first-class certificate. It was remarkable for the bright red colour of the pitchers. He first described the flower

pointing out a curious observation lately made by Mr. W. G. Smith, that when the flower is in a dry atmosphere the petals hang down and obstruct the passage by which insects enter to fertilise the flower, but when in a moist atmosphere they become turgid, rise up, and so leave free access to the interior. He then described the structure of the pitchers, and the method by which insects are entrapped. The lid and lip abound with attractive honey glands. The honey appears to be very slightly stupefying, so that insects do not fly away, but crawl about; the surface, however, is covered with deflexed spiny processes which develop into long needle-like structures below, so that it affords no foothold, and the insect inevitably glides downwards till firmly caught. Numerous dead insects are always found wedged into a compact mass far down the pitcher. There is no doubt that the nitrogenous matter is beneficial to the plant when it has been absorbed. Some insects, however, are too wary to be caught, but simply drop their eggs in, so that their grubs may thrive in the decaying matter and ultimately escape by perforating the tube. On the other hand, birds slit open the tubes and extract the living grubs. A fine plant of *Hydrangea Mariæ* with blue flowers from Japan, found growing wild there by Mr. Mariæ, next called for some remarks. Another species with the central flowers perfect, but those on the circumference barren, afforded the explanation of the enlarged barren flowers of the garden *Hydrangeas*. It was the calyx enlarged and coloured, the internal parts of the flowers being aborted. In the *Guelder Rose*, which presents a very similar appearance, it is the corolla which is abnormally enlarged. Mr. Henslow showed how several organs can be highly coloured and give an attractive feature to a flower, thus besides the calyx and corolla, in *Iris* the styles add to the beauty, while in *Cactus* the bracts are coloured and assist. In *Hyacinthus comosus* there was nothing but coloured flower-stalks, the flowers having been entirely arrested. The Family *Iridaceæ*, of which several genera, such as *Iris*, *Gladiolus*, *Ixia*, and *Sparaxis*, were exhibited by Messrs. Barr and Sugden, furnished remarks upon the various methods of insect fertilisation carried out in one and the same family. Thus, while in the *Iris* the bee enters under each "petaloid" style successively, and gets dusted on the thorax, the arching stigma then removes the pollen when it enters another flower; but in *Gladiolus*, the three stamens are so twisted as to lie side by side under the upper petals, hence the bee is dusted by all these anthers at once, but also on the thorax. On the other hand, in *Ixia*, *Crocuses*, &c., the perianth is contracted into a narrow funnel-shaped structure, compelling the bee to enter head downwards and grasp the stamens with its legs; and since the anthers always burst outwards in this family, the insect is dusted below. Flying to another flower, the erect brush-like stigma sweeps off the pollen. Some double *Pæonies* also exhibited by the same firm showed different methods of doubling. In one case the carpels were represented by a central tuft of rather large petals, the stamens by smaller and yellow petals, the true corolla being below and having its petals multiplied. In another the petals and stamens were repeated in succession, so there were two whorls of each succeeding each other. In a third the flower consisted of a globular mass of petals, but the different origins from stamens and carpels were undistinguishable.

Flower Show at the Alexandra Palace.—The second of a series of floral exhibitions was held here on Friday and Saturday last. The chief features of the show were dinner-table decorations, vases and baskets of flowers, bouquets, groups of plants, and show and fancy *Pelargoniums*. The principal and most successful exhibitors in the table decorations were Miss Williams, Messrs. Dick Radclyffe & Co., Miss Chard, and Mr. Buster; all their arrangements were good, particularly those of Miss Williams, who combined simplicity with elegance. There were numerous bouquets, button-hole bouquets, &c., those among the latter from Miss Baines, Palmer's Green, being especially noteworthy for their tasteful arrangement. The *Pelargoniums* were not numerous, but some were of high quality, notably those shown by Mr. Wiggins, Hillingdon Place, Uxbridge, who has been so successful at the large shows this year with these flowers.

***Spiræa palmata*.**—I am surprised to learn that any difficulty is experienced in flowering this plant, which is certainly one of the best hardy plants we have got, but it is considered to need a moist situation. In our dry borders of ordinary garden soil, which is liable to crack in dry weather, it grows as well as anything we have got, and never fails to flower freely. I bought a single plant of it some years ago, and now we have about 30 fine clumps all from that plant, and nearly all at the present time are coming into flower, the foliage last few being fine and healthy. The rainfall has been short here for the weeks.—J. S. W.

LATE NOTES AND QUESTIONS.

Gloxinias Failing.—*I have a few dozen of Gloxinias, the leaves of which have got completely covered with brown spots or blisters, of which I enclose a leaf as a sample. I am much perplexed, never having failed before with Gloxinias. What think you is the cause?*—W. F. [It is difficult to form an opinion from a single dry leaf without seeing the plant or the conditions under which the appearances are produced. We can find no fungus spores, but we must say that the appearance is very like the early stage of some of the leaf fungi.]

Acer Schwedleeri.—We have a young tree of this about 10 ft. high, and with a stem from 2½ in. to 3 in. in diameter at the base. It is a grafted tree, and not a particularly good graft, or rather union. The stock is about 1 ft. above the surface of the ground, and what I want to know is, if it would do any good to add soil to the surface, so as to cover the point of union. Would there be any likelihood of the tree throwing out roots above the graft, thereby giving it more power to resist the strain of high winds?—ENQUIRER.

Plant Food.—I cannot get liquid manure for my Cucumbers, Vines, and flowering plants, so I use dissolved bones in water. I should be glad if some of your readers can give me a better recipe, as I fancy it forces and does not feed the plants. R.

Diseased Leaves.—R. B.—We can see no fungus on the leaves sent. The injury appears to be due to red spider or aphides. The leaves seem to be covered with very minute punctures, and in these places the leaf green is gone. Vigorous syringings will kill the spider, and fumigation the aphides.

Insects.—W. M. S.—The insect you forwarded is a young specimen (in the larva state) of the common cricket. Crickets sometimes attack plants. They may be destroyed by the same means as cockroaches.—G. S. S.

Seedling Gloxinias.—D. J.—The Gloxinias are well grown, but the varieties do not appear to us to be superior to others already in cultivation.

Peach Leaves.—H. S. W.—They appear to be suffering from the effects of cold.

Liquid Manure.—How can carbonate of ammonia be used to the gallon of water as a liquid manure?—A.

Mildew.—A.—Cold and damp will cause it. Flowers of sulphur applied when the leaves are wet is the only remedy.

Aquilegias.—E. M.—Shrivelled up beyond recovery when they reached us.

Names of Plants.—*Emsworth.*—*Gardenia Standishii*; *Aquilegia*, apparently a hybrid form of *A. cerulea*; *Tradescantia* species; send when in flower; *Mesembryanthemum*.—*C. L.*—*Viburnum Opulus* (type); 2, *Polygonum Bistorta*.—*J. W.*—*Myosotis sylvatica*.—*Anon.*—1, *Sciodopitys verticillata*; 2, *Cornus suecica*; 4, *Carex pendula*; 3, *Pernettya mucronata*; 6, *Galium* (species); 9, *Saxifraga hypnoides* var. Send the Ferns later in the season when the fronds are fully matured, as they arrived withered, and please bear in mind that our rule is not to name more than four plants at one time. The numbers of some of the others became detached.—*A. Dewar.*—*Papaver orientale* var. *bracteatum*.—*R. H.*—1, *Amelanchier*, but cannot name species without flowers; 2, *Staphylea pinnata*.—*Mac.*—*Cornus alba*; *Chrysanthemum Leucanthemum*.—*C. E.*—1, *Listera ovata*; 2, *Veronica Chamædrys*; 3, a species of *Hieracium*.—*Stroud Nisbet.*—*Campanula muralis*.—*M. W.*—*Halesta tetraptera*.—*W. M.*—*Anthericum Lilium*, not the St. Bruno Lily.—*Anon.*—1, *Euphorbia Lathyris*; 2, *Fuchsia procumbens*.—*C. M. O.*—The two smaller Irises are *I. sibirica* and its variety *alba*; the others were withered beyond recognition; *Mimulus cupreus* var. *coccineus*; *Thalictrum tuberosum* and *Isohyrum thalictrifolium* are distinct, but the two you send are apparently the same.—*M. B.*—Blue, *Tradescantia virginica*; yellow, *Helianthemum vulgare* var.; crimson, *Calandrinia rosea*. The best way to pack flowers for posting is to wrap them in gutta percha or waxed paper, and enclose in a strong tin box.—*Mrs. F. (Madehurst).*—Next week.—*T. Balding.*—*Hesperis matronalis*; *Phyllocactus multiflorus*.

Colossal, selected at planting, gives a still better return, probably sixty per cent. Evidently this last is a finer selected stock than is generally grown in this country, but differing in no other respect as far as can be judged. At the present time we have numerous shoots growing up that girth from 2½ in. to 3 in. in circumference, and this from plants that were raised from beds of the poorest description. How much better would be the return if our leading seedsmen would put within our reach seeds saved from the best French plantations. The general practice in most gardens is for a garden labourer, when cutting the ripe stems, to save for seed those with the heaviest crop of berries, which are invariably the smallest stems. The strongest stems have but few berries as a general rule, and should be saved.

Guntton Park.

WM. ALLAN.

—I think the scarcity of competitors at Tunbridge Wells will surprise but few, and certainly ought not to be discouraging. Exhibits from all parts of the country could not be expected, as the differences of the time at which Asparagus comes into use are very great. At the time the Bath and West of England Show was held, some of our Asparagus growths were 7 ft. high, and at the same time a lady, whose garden is in Scotland, told me they had not been able to find a head ready for cutting on theirs. Others similarly situated could not, of course, compete at such a time, and unless the competitions could take place at South Kensington, or elsewhere, at two or three different meetings of the committee, I am afraid exhibitors will never be very evenly distributed over the country. Asparagus, I presume, is judged on much the same principle as Pine-apples, weight being, in the main, the first consideration. If this is the case there would be no difficulty in finding out from whence the best came, as the points gained by one competitor, say in the middle of May, would easily be placed against others made in the middle of June. Had the weight of the prize bundles at Tunbridge Wells been given in your report (p. 613) it would have been more interesting. For aught we know the bundle of 60 heads may have been 60 oz. or 60 lb.

J. MITR.

Margam, Glamorganshire.

LAW.

The Commissioners of the Exhibition of 1851 v. The Royal Horticultural Society.—This was an ejectment action in the Clancery Division of the High Court of Justice to recover possession of the gardens at South Kensington, under a clause in the lease or agreement by which the society hold their premises from the commissioners of 1851, which gives a right of re-entry under certain circumstances. The agreement in question is dated July, 1860, and is of a very complex character. It provides in effect for the payment of a variable sum by the society to the commissioners by way of rent equal to half the net surplus income of the society after payment of all expenses. The 18th article of the agreement, the one upon which this action was brought, provides that in case it should happen, after the expiration of the first five years of the lease, that the sum payable to the commissioners as rent should fail in every one of any five consecutive years subsequent to the first five years to be equal to the sum of £2145, it should be lawful for the commissioners to re-enter upon the premises and resume possession without making any compensation for improvements. The statement of claim alleged that no sums were payable by way of rent during five consecutive years commencing on the 1st of June, 1873, and the forfeiture had consequently taken place. The provision upon which the decisions in great measure turned was to the effect that an expense committee should be appointed of six persons, three on behalf of the society and three on behalf of the commissioners, of whom one of the latter three should be chairman. The function of the committee was to control and keep down the expenditure of the society. No finance committee had been appointed, and it was said that until the expenses had been checked it could not be ascertained that no surplus had existed. Mr. Justice Fry, before whom the case was tried, said none of the defences raised had any weight on his mind, except that founded on the default in appointing the expenses committee. He thought the non-appointment of the expenses committee prevented the plaintiffs from showing that the condition in which their right of re-entry came into effect had happened. It was impossible to say that the expenses which had been incurred would have been allowed had that committee been in existence. He said that even if the argument were to prevail that the defendants, the Horticultural Society, were bound by acquiescence as against them, it could not avail against the debenture-holders, who had lent their money upon the faith of the provisions of the lease, and were interested equally with the commissioners in having the expenses cut down, in order that a fund might be provided for the payment of their interest, and also principal. His Lordship dismissed the action.

THE ASPARAGUS COMPETITION AT TUNBRIDGE WELLS.

FORESEEING the difficulties likely to arise regarding the sixty heads of Asparagus arriving by twelve o'clock on Whit-Monday, viz., enormous traffic on the railways for Whitsun holidays, an intervening Sunday, and the change from the Great Eastern Railway Company to another, I packed and started them off on the previous Friday, too long a time for Asparagus to remain packed, especially in hot weather, and after some of it had been cut some few days. Another year, if convenient, I hope the competition may take place earlier, say between the 25th of May and 1st of June, at which time Asparagus is generally found at its best in this country. The beds here have entirely recovered from the effects of the sunless summer of 1869; they, however, fell off in both quantity and quality last season—a general complaint throughout the country. From my experience in the cultivation of Asparagus on the French system, I am sanguine that in a few years Asparagus in English gardens—with the inducement now offered to gardeners to try the plan—will rival the best productions from France. Selection must be the object with every good cultivator, who should save seed only from the best stems, and plant only those plants that have a tendency to produce large heads. In our case, without the knowledge that close observation gives, our first beds (for convenience we will call them No. 1) were planted with plants from seeds taken indiscriminately; I planted the same; they contain only ten per cent. of plants with large heads, though we found all the heads much improved in size compared with those grown on the old system. No. 2 beds were planted with plants from seed taken in the same way, but at planting time only those with stout shoots were used, and the result was much better; probably forty per cent. of this plantation always produced large heads. No. 3 plantation, made with plants raised from a packet of Comber's

No. 501.

SATURDAY, JUNE 25, 1881.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

A LANCASHIRE GARDEN.

BEFORE I proceed to describe the garden proper, there are one or two points I omitted to mention when speaking (p. 563) of the plantations for shelter. One is that among the trees which stand the sea gales best is the Elm, but I omitted to name it because it should never be admitted near a garden, especially the Wych Elm. They send out their roots so far that no flowers can be grown near them. Unfortunately, we planted a good number, and they succeeded excellently, and made beautiful young trees and good shelter, but whenever we had occasion to turn up the soil of any of the beds within 30 or 40 yards of them there we found their roots, which seem, by some law of their nature, to find out any rich, well-manured soil, and make straight for it, and branch out luxuriantly, to the great injury of the flowers. We had to cut them all down and plant Sycanores, Limes, and Beeches instead. Another point worth mentioning is that the heaps of decayed leaves stored up were found so full of insects, that before using them to surface the plantation at the edges, we put them in the yard where we keep fowls, which revel in them, scratching up and devouring the grubs and larvæ as well as the worms. I attribute the extraordinary luxuriance of the Primulas, and some other plants at the edge of the plantation, in a great measure to this enrichment of the surfacing material by the fowl manure. One of the plants I ought to have mentioned, which is one of the brightest ornaments of the front of the plantations in spring, is the Apennine Anemone, the bright soft blue of which makes a lovely harmony with the Primulas and other flowers. We found, however, that we could not get the dry tubers established by planting them at once in the open ground. The wet destroyed them, but by planting a number of them in pots, and keeping them rather dry during the winter, we succeeded in keeping them alive till they began to grow in spring, and when the leaves were well up we planted them out in the plantation, and they all lived, established themselves, and have increased both by spreading and by seeding. Before we quit the subject of shelter I should like to name a feature in the garden which we have found both useful and ornamental, namely—

Beech Hedges.—These we used as a screen to hide the place where we keep frames and hotbeds, and also as a shelter on the west and north-west sides of choice borders, where we found the shelter of the plantation insufficient. The secret of making such hedges grow, as they should do, down to the ground, instead of being bare at the bottoms, as they so often are, is simply to cut them so that each branch extends further out than the one above it. Never let one branch overhang another. "Take care of the bottoms and the tops will take care of themselves" is the motto for hedges of all sorts, whether of Beech, Holly, or Thorn. Our Beech hedges are now 10 ft. high, 3 ft. wide at the bottom, and gradually taper to a point at the top, straight as a wall, and covered with leaves from top to bottom; they are beautiful at all seasons, green in spring and summer, and red in autumn and through the winter till the new leaves push off the old ones. When cut in they keep their leaves all winter. They form a perfect shelter for a deep flower border to the south and east of them, in which there are Pear trees at the back nearest to the Beech hedge, then Weigelas and similar shrubs, with standard Roses between, showing above these, mixed with

Hollies, Retinosporas, and other evergreens, the tallest of course at the back, and in front are the flowers. Then comes a broad Grass walk, and beyond it a Rhododendron bed, which is sheltered by the Beech hedge, and itself keeps the east wind from the flower border. These are the sorts of precaution we find effectual against wind. Now comes our other enemy—damp. I will describe a

Lily Bed which has succeeded perfectly for all the Lilies that do not answer in wet soil, that is, all except swamp Lilies, such as canadense and superbum; and in it all sorts of bulbs, and in fact everything we have planted, has flourished. We dug out 4 ft. deep, that is, some 3 ft. below the clay, leaving a flat bottom sloping towards one corner. We filled the bottom with about 1 ft. of stones and brickbats, and the remaining 3 ft. with 1 ft. more, raising the bed 1 ft. above the level; then filled up with made soil, namely, the top spit of loam which rests on the clay, and the rest a mixture of fibry peat, coarse sand, or gravel, leaf-mould and burnt clay. From the lowest corner of the bottom of the bed we ran a drain. In this bed Lilies thrive wonderfully. There is now in bloom a clump of *Lilium monadelphum* (Loddigesianum) 4 ft. 6 in. high, and the stems as thick as a stout Malacca cane, all from a single bulb planted in 1877; also a fine clump of a dozen *L. carnolicum*. Other Lilies are fast coming into bloom, and are much finer and healthier than any I see under glass. *L. speciosum* (lancifolium) seems almost more than any to benefit by outdoor treatment, but *L. pomponium*, *chalcedonicum*, *davuricum* of all sorts, *Humboldtii*, *longiflorum*, *auratum*, and in fact every sort we have planted in it, all succeed well, and keep up a show of flowers till the very end of the autumn; *L. monadelphum* is usually in flower in May. This year it did not open till June 5; *L. speciosum* and some of the *auratums* are last. In winter we put a heap of coal ashes over each clump, which throws off the rain. Some night soil is added, which no doubt contributes to the luxuriance of the growth. Manure we never put near Lily bulbs. We find it unnecessary, though Mr. Perry, the intelligent foreman at Mr. Ware's, tells me they use it. I object to it because it breeds insects. Following Mr. Barr's advice, I always surround Lily bulbs, and indeed all other bulbs, with pure sand. The effect of this is that when they are examined they are found clean and healthy, without any soil sticking to them, whereas if planted in the soil unprotected by sand they are found dirty, with spots of rot and eaten by insects. If manure be used at all for bulbs (and for Daffodils we find it beneficial), it should be 6 in. below the bulbs, so that the fibres that grow from the bottom can get to it, or as a surfacing; but the best surfacing is coal ashes and night soil heaped into a low cone before frost sets in. It acts as a non-conductor and keeps them warm, and it keeps them dry, and when they begin to grow it acts as manure. We take away a portion in spring and spread the rest on the bed.

Shade.—The directions usually given as to growing shrubs and plants to shade the Lilies are not so applicable in this climate as in such places as Colchester, where Dr. Wallace lays stress on it. Here the sun in spring is beneficial, and though no doubt in summer it is better for them to have the ground shaded, it should be only by such low shrubs that the stems can rise well above them into the sunshine. I have a good number of plants of *Kalmia rubra* and *glauca* in the Lily bed described, both of which are hardy and the flowers are beautiful, but I have come to the conclusion that the very shrub for Lily beds is *Azalea mollis*, which is bare of leaves in spring, when the Lilies like sun, and gives abundant shade to the surface when full of leaf in summer. This plant has been perfectly splendid this year in the bed in question—a mass of flower—and when the flower is over, the bright green

leaves are beautiful. Round the edges of this bed we have quantities of other bulbs and flowers, which make it gay till the Lilies come. *Scilla bifolia* thrives, and the white *Scilla bifolia* thrives still better. I fancy I must have a particularly good strain of this, which I found in an old Cheshire garden famous for its bulbous plants. I took away a single clump while it was in flower and put it in a pot, which I plunged till the leaves died down, and then separated, when I found it contained about fifty bulbs, large and small, which I planted up and down the garden wherever we had light soil, and chiefly in the above-mentioned Lily bed. It has so increased, and has seeded so freely, that the bed is covered with it. At the same time I took some bulbs of the autumn-flowering *Crocus nudiflorus*, which has increased in the same way. I am sure bulbs require to be acclimatised, and there is an immense difference between bulbs obtained from a drier climate than ours and those we raise from seed or obtain from the neighbourhood. Imported *Lilium auratum* bulbs flower most of them the first year, about half of them die the second, and most of the rest die the third. Those which live may be considered as established, and increase every year afterwards. I found at the nurseries of Mr. Isaac Davies, at Ormskirk (the raiser of the excellent strain of hybrid *Rhododendrons* between *R. Edgeworthii* and *multiflorum*), a large bed of seedling *L. auratum*, and all I bought from this bed have thriven.

Other Bulbous Plants, which make my Lily bed gay in spring are an edging of the double Jonquil and *Scilla sibirica*, *Chionodoxa Lucilæ*, Mr. Maw's beautiful introduction, *Puschkinia libanotica compacta*, *Triteleia lilacina*, *Fritillaria Meleagris* of various sorts (one of the best being the white), *Erythronium giganteum*, and the pretty varieties of Dog's-tooth Violet, sold by Mr. Barr, and a host of others. I have only mentioned a few of those which recur to my memory at the moment as the most beautiful. I must not forget to name two splendid plants of large growth which grow well among the Lilies—the golden *Chrysobactron Hookeri* and the white-bellied *Hyacinthus candicans*. These should really be widely distributed, they are so beautiful and so easily grown. Among my failures, in fact, my only failure in this bed, are *L. giganteum*, the cause of which I hope to find out, but it dies off just after the leaves rise above the ground, and *L. Krameri*, which I have not yet succeeded in keeping through the winter out-of-doors. The Lilies which I find to do best in *Rhododendron* beds (a situation often recommended, but which I find only suitable for a few, being too damp for most) are *L. candidum*, *L. chalconicum*, *L. testaceum* or *excelsum* (which is a hybrid between the two last), *L. superbum*, and *L. umbellatum*, which, however, grows anywhere well. Our *Rhododendron* beds are on the flat, not raised, and not specially drained, to keep the *Rhododendrons* moist during drought, and consequently they are too damp for many sorts of Lily, but the above-named kinds grow very tall and strongly in them. The grand old white Lily of the Virgin (and of the cottage gardens) certainly thrives better in this situation than anywhere else, because the damp does not hurt it, and the *Rhododendrons* protect the young leaves in spring from frost and wind, and it looks better, showing its white flowers over and between the *Rhododendrons*, than anywhere else. *L. testaceum* grows taller than its parents, and may be planted more in the middle. *L. chalconicum* is the least tall of the three, and should be placed rather towards the outside and between the *Rhododendrons*, and also *L. umbellatum*. I have left myself no space to talk of other plants this time, but I have a good deal to tell about our experiences, both failures and successes, if you

think your readers will care to hear more of our combat with the powers of destruction, and attain a similar victory at less cost than we have had to pay in the process of finding out what will grow and what it is only a loss of money and labour to attempt. Luckily, some of the best things are also the easiest to grow if people only knew which they are, and what are the special dangers besetting each. The successes are to be seen, but the failures are only a memory and a warning.

Aigburth.

E. H.

EDITOR'S TABLE.

The Double Siberian Larkspur.—A rare pleasure comes to us in the shape of the rich blue old *Delphinium grandiflorum* fl.-pl. from Farnborough Grange, Hants. We hope to have the pleasure of again seeing this fine old plant really well grown in our good mixed borders. All the Larkspurs travel badly, owing to their hollow stems.

Old Roses.—Mr. Beech sends us from Castle Ashby an old Rose from a grand old place. Where any of the old Roses are still grown well, they are now delightful. What Roses are more welcome than those flattened bunches of Moss Roses in the London market, grown in half shady orchards, or the old white Provence, of which we have had the happiness to secure a bunch during the week.

A Graceful Combination.—Mr. Burbidge's Day Lilies (violet-brown), Thunderbolt Iris, and common Grasses thrown into a jar together make a very graceful and novel combination. So also do early Gladioli, white and rose, from the same source, and five *Funkia* leaves.

A Noble White Lily.—A fine tall selected form of *Lilium longiflorum* was sent to Covent Garden the other day by Mr. Beckwith, of Tottenham, and it was quite a pleasure to see the noble wreaths and bunches of grenadier-like ranks of this in the market. Mr. Beckwith informs us that he keeps up a supply of this Lily for market from early in April till about the end of July, using for this purpose between thirty and forty thousand carefully selected roots. It is a tall and vigorous form, bearing several flowers on a head.

Fruit of the Large Evergreen Barberry.—Some ten days ago Mr. Stevens sent us a fruiting branch of this noble Japan shrub, which we placed in a jar that we might admire the fine form of its leaves, in the centre of which was a bunch formed of several racemes of perfectly green fruit. Some few days afterwards this turned purple, and now it is covered with the most perfect "bloom" a gardener could desire for his Grapes, beneath which the berries have become dark and ripe.

Seedling Columbines.—From Sir Wm. Marriott we have a charming lot of these, which are certainly very delicate in colour and fine in form, having in that respect mainly the characteristic of the Golden Columbine. Good as they are, however, we notice that the finest forms are those that come nearest the type of the Rocky Mountain Columbine (*A. cœrulea*) and the Golden Columbine (*A. chrysanthæ*). The specimens sent must be worth seeing in a growing state, as they are large and well grown.

A Beautiful Shrub from the South of Ireland.—A fine *Abutilon*-like shrub (*Sida malvaeflora*) is brought to us by Mr. W. E. Gumbleton from his garden at Queenstown. The flowers are large, well-formed bells of a delicate lilac colour. It forms a large shrub, and must indeed be well worth growing in districts where it will succeed. It does not seem to us the same plant which used to be grown in Ireland as a wall shrub under the name of *Abutilon vitifolium*. In any case, it deserves to be looked after.

English Names.—In this column we purpose using in every case where it is possible an English name, and beg that all who write to us will do the same. No doubt it is often difficult to find a fitting or accepted English name, but on the other hand people often stray into the use of jaw-breaking terms when there are excellent English names. Give the Latin name in brackets except in the case of very well-known plants.

A Splendid Cactus.—J. T. Peacock is the name of a superb hybrid Cactus raised by Mr. Croucher, and sent us from Mr. Peacock's garden at Hammersmith. It is a noble plant, which we hope may be increased. The flowers are nearly 8 in. across and very fine in form, brilliant crimson flushed with violet. It has pleased all who have seen it. Such a plant well grown and well flowered would be a grand sight. Even the older *Cereuses* and *Epiphyllums*, from which we presume it was raised, are well worth cultivation, and we regret

their disappearance from our greenhouses. Cactuses that do not flower well and always remain about the same are in a sense deservedly neglected, but there is not the same excuse for ignoring those which flower abundantly, and bear some of the most remarkable and beautiful flowers we know of.

The Umbrella Magnolia is a fine flowering tree, specimens of which Mr. Groom sends us with great green leaves and large white flowers richly scented. It is one of the Magnolias really worthy of cultivation as a lawn or pleasure ground tree. It flowers between the period of the early Magnolias and the great evergreen Magnolia, than which it is much hardier, being, in fact, a thoroughly tested tree which has stood all our late winters as bravely as those grand Chinese Magnolias at Sion, which during the past harsh spring looked like trees clustered over with Lilies.

Some White Flowers.—White flowers are not scarce by any means, and yet good white flowers are always welcome. Among the best of the week are the old white Fraxinella (*Dictamnus*), well grown and with the spikes long; the slender St. Bruno's Lily, with the long unbranched spike (*Anthericum Liliago*)—the specimen 18 in. long in the flowering part of the stem; the spiked Star of Bethlehem (*Ornithogalum pyramidale*), a very graceful plant leaning out of a jar, and gradually opening its pretty stars. All the above are worth growing on a free soil, sandy like that on which Mr. Stevens grows them.

Early Scarlet Lilies.—Three small and brilliant Lilies all of a row outside the window, put out for the misconduct of one of the number mainly. They were all in one jar, and the large room in which they were placed became uninhabitable owing to the sickly odour therefrom. The chief offender was *L. pomponium*, a brilliant scarlet Turk's-cap with minute black dots. How charming it is to see those three Lilies—*L. tenuifolium*, *L. pulchellum*, and *L. pomponium*—all in bloom so early in the year. A very few years ago not one of these could be seen except, perhaps, a sickly bit of *L. tenuifolium*, and even that was rare.

Late Hawthorns.—It is pleasant after our own Hawthorn has passed out of flower about London to find others succeeding it with pearl-like buds, sweet flowers, and glossy leaves. Among the kinds in question are *Crataegus punctata* and *Crus-galli glandulosa*, also a shining-leaved one, supposed to be a variety of the common Hawthorn, but quite distinct, in being much later and in the foliage having an evergreen look, so to say. Of these, Mr. Stevens has a good collection. We have not this year seen about London a Hawthorn (single) that Mr. Gumbleton describes as having a white centre and clear pink edge.

Siberian Irises.—Another very beautiful Siberian Iris (*I. s. nigrescens*) has flowers of the richest dark purple, lovely in every way, and also larger than those of the type, though in this respect they vary considerably, in some approaching the large size of *Melpomene*, described last week, and in others getting nearly as small as those of *sibirica*. Whether this fine size is owing to cultivation or not, we do not know, but evidently there is in these various allies or forms of *Iris sibirica* materials for a beautiful race of Irises which might be called Siberian just as other valuable races are known as German, Spanish, and Japanese. These would be at once characterised by their long, narrow, grass-like leaves and elegant form of flower.

Variegated Trees.—Mr. Groom kindly sends us some "golden lace leaf Elder" and a few other variegated shrubs—poor sickly things that we have no patience with, though he says they look well among dark-leaved Pinuses, &c. Our experience of such variegated trees and shrubs is, however, too melancholy to give us much faith in these. Only one out of fifty of the kinds sent out are ever worth a farthing. It is a great mercy that such is the case, for, otherwise, this fair green world of ours would be leprous with plants that really ought, if allowed to live at all, to be in a botanical hospital. Many of them are pretty when they are young and in the propagator's hands, but watch them when they are old!

White Flowering Shrubs.—Mr. Stevens kindly sends a very graceful specimen of *Rhodotypos kerrioides*, a white flowered shrub resembling in its leaf the old *Corchorus* of the cottage garden. The flowers are larger than those one generally sees, and some of the petals seem slightly malformed and uneven in size, a circumstance which does not detract from the beauty of the plant. This shrub deserves an English name, and we shall be glad if anyone will suggest a good one. The flowers are pure white. The Mexican *Syringa* comes with this, a very graceful plant, full of pure white cups and pointed white buds; both are among the most beautiful white flowering bushes we have seen for some time. The *Syringa* comes in grandly after the crowd of trees and shrubs that bloom in May are over,

The Fringe Tree.—Among a very interesting collection from Bassett Wood, Southampton, we have, in addition to plants mentioned elsewhere in this and recent numbers, the Fringe tree (*Chionanthus virginica*), the Allspice (*Calycanthus occidentalis*), and with these choice trees the old fringed Pink (*Dianthus superbus*), the Atamasco Lily (*Zephyranthes*), and *Sprekelia formosissima*. Mr. Davis Evans says in sending them, "The grounds are naturally much undulated, and have a gravelly dry subsoil generally, a fair depth of sandy peat in some places, and strong loam in others; a home can always be found for worthy and tolerably hardy subjects, and many greenhouse plants thrive admirably in cosy corners outdoors." A long slender wreath in bloom of the variegated Japan Honeysuckle from the same garden is very welcome.

The Moccason Flower (*Cypripedium spectabile*) by Water. —Very interesting bunches of this plant come from Colchester, showing a difference of growth in plants in ordinary and in wet ground. Mr. Horsman says of them: "I have a large piece of ground in the valley devoted to growing vegetables, and as the soil was too damp for garden crops generally, I thought that perhaps *Cypripedium spectabile* might succeed there. The result is very satisfactory, as I think you will admit when you see the flowers. One thing I notice particularly, that nearly all the spikes from my garden have two flowers, the others only one; it may have nothing to do with the situation, but the difference between the two is so great that one might consider the one a major variety, but I think not, the situation and soil making the difference." The best specimens we have seen of this fine plant have always been in moist or boggy earth. Dr. Moore used to have it very strong indeed in a border on the north side of one of the ranges of glass at Glasnevin in deep, moist leaf soil, not a bog, but the nearest thing to it. Many plants of this have been lost from being placed in ordinary dry borders. In its native country it is a peat bog plant. At Messrs. Blackhouse's it is best in the artificial bog; so too at Mr. Clarke's.

A June Evening's Gathering.—Irises, many and rich (Spanish, English, and German), Pansies, Violets, Columbines, Rosy Heart (*Dielytra*), double Dropwort (*Spiraea Filipendula fl.-pl.*), Stonecrops, St. Bruno's Lily, Rock Speedwell, Pæonies (a noble collection), Evening Primroses, Cranesbills (Geraniums—both dwarf, alpine, and vigorous species like *G. armenum*), Snapdragons, Cornflowers, Cape Pondweed, Thrifts and Prickly Thrift (*Acantholimon*), Harebells (rock and wall kinds), Canterbury Bells, perennial Larkspurs, evergreen Candytufts, tall Harebells (*Campanula*), blue Alpine Daisy (*Aster alpinus*), red and white Valerian, Sweet Williams, Pyrethrums (double and single), Foxgloves, Rose Campions, Flaxes, Everlasting Peas, Phloxes (*P. ovata*), Pinks, Lupines, Lilies, double Rockets, Day Lilies, the tall Star of Bethlehem (*Ornithogalum pyramidale*), Rock Nasturtium (*Tropæolum polyphyllum*), beautiful in wavy wreaths on a carpet of grey leaves, early Gladioli, Roses, and Clematis—all of the best of their kind, is a very fair collection of one evening's bloom in Mr. Robert Parker's nursery at Tooting. Note that all the above have English names, or names which are as easy to remember, and as well recognised as such. If all technical terms were as well applied and as beautiful as Iris, there would be little to say as regards English *versus* technical names.

The Blue Garlic (*Allium azureum*) is one of the very few Alliums that have any claims to garden culture. It is impossible, we believe, to make the public grow some of these plants that are frequently praised in catalogues. Certain of the pale pink and rosy American kinds will never be useful garden plants, nor are they desirable. We, who have the future of our gardens to consider, must look not merely to the botanical interest of a plant, but to the fact that it must be both distinct and beautiful considered in relation to our other materials. Now, the kinds that seem to us to possess these qualities are the bright, sparkling, white ones which are already becoming known in our gardens, and one of which is sometimes imported to Covent Garden in a cut state from the south of Europe. But the Blue Garlic mentioned at the head of this paragraph is quite different from any other kind, and with its soft round head of blue flowers seems to us a plant meriting cultivation. Its flowers do not, like some of the others, smell of Garlic, but the moment the stem is scratched it will be found a tartar of the true breed. Anybody short of Onions need not despair so long as a tuft of it is in his garden.

Lathyrus Drummondii.—"A.D." speaks justly in high praise of this beautiful and floriferous species. It is now in magnificent bloom with me. I daresay there are nearly 200 spikes of bloom on one plant. Its right name is *L. rotundifolius*.—H. HARPUR CREWE, *Drayton-Beauchamp Rectory, Tring*.

Index Number.—The next issue will contain the index and a portrait of the late Mr. John Gibson,

THE LIBRARY.

A MANUAL OF THE CONIFERÆ.

BY MESSRS. VEITCH.

THERE are not wanting indications on the part of some of those who are actively interested in horticulture and arboriculture of misgiving as to the merits of some of the more recently introduced species of cone-bearing trees as decorative subjects. The interest excited some five-and-twenty or thirty years ago by the importation of numerous new and attractive species developed itself into something like a mania; and there is no doubt that, stimulated as it was by the enterprise of nurserymen who very naturally did nothing to discourage a taste which was so beneficial to their trade, this mania for cone-bearing trees resulted in an undue neglect of the more beautiful and varied forms of deciduous trees and shrubs, and there is some danger that a reaction may set in, and that a beautiful and interesting race of trees may fall into discredit, not from any want of merit in themselves, but from their indiscriminate use in every sort of situation, and in every scale of scenery. Species which, during the early years of their growth, decorated with Fern-like luxuriance and perennial verdure spaces of ground wholly incapable of containing them in their ultimate stately development, are now beginning to show impatience of culture or uncontrollable stature.

"Be aye stickin' in a tree, Jock, it'll aye be growin' while your sleepin'" was the excellent advice given by the Laird of Dumbiedykes to his son; but it was addressed to one who had not to deal with riverside lawns or villa gardens, with terraces or English parks, but with bleak Scottish hillsides and rugged dells. Everyone must have noticed with amusement, not unmingled with regret, the perversity with which young plants of the loftiest Pines are planted in ludicrously inadequate spaces—Californian Silver Firs in little gardens 12 ft. by 8 ft. in front of suburban cottages, Wellingtonias within 12 ft. of drawing-room windows, and Araucarias in back yards. For a few years, if the atmosphere is not too smoky, these fill the part of shrubs, and are undoubtedly pleasing from the variety and verdure of their foliage; but as soon as their real character begins to show itself, their unsuitableness for such situations becomes painfully apparent. The heir to £20,000 a year during his boyhood may discharge efficiently the duties of a shoeblick or a boy in buttons, but as he grows older the knowledge of his inheritance will inevitably unfit him for the humble part he is called upon to play. Even in large parks and demesnes frequent mistakes have been made in the experimental planting of the grander specimens of conifers among English Oaks and Beches, and at the present time many a proprietor is puzzled by the problem whether to remove the ancient and legitimate denizens of his park in favour of the quondam nurslings which have already assumed portentous proportions, and are themselves such commendable "specimens," as to make their own removal a matter of regret. That they are "above their station" is too evident in many cases, but their unfitness is not from any inherent defect or unworthiness, but arises from the unwisdom of those who placed them in situations unsuitable to their character and development. The modest volume we have before us seems to be precisely what is required to impart an accurate and practical knowledge of the character and capabilities of this family of trees. With somewhat less scientific detail than Gordon's admirable "Pinetum," but with more cultural instruction and professional enthusiasm, almost every page contains readable matter, and imparts useful information.

As we are told in the introduction, the present manual is founded on and enlarged from Messrs. Knight & Perry's little volume published many years ago, and now out of print. The numerous and important additions made to our list of acclimatised conifers since that book was written, and the knowledge of the behaviour of many species which we have acquired being adequately treated by Messrs. Veitch, make their volume a very considerable development of the original work. The first part deals with the characteristics, botanical and commercial, and the distribution, geographical and geological, of the Fir tribe. This part of the subject, which is often treated in a dry, unattractive way in scientific treatises, is made attractive by interesting, and even romantic, narrative, such as that well known instance of the durability of Cypress wood—"The gates of Constantinople, which were destroyed by the Turks in 1553, after having lasted 1100 years,

were made of the wood of the European or Roman Cypress" (p. 16). Again, quoting Sir J. D. Hooker's address at the Royal Institution, 1878—"The prostrate trunk of a Wellingtonia, with no signs of decay in any part of it, had been burnt in two by a forest fire. In the trench between the two portions a Silver Fir grew. This Fir was felled, and had 380 annual rings; therefore to estimate the time during which the Sequoia trunk had lain uninjured, we must add to the 380 years—first, the time it lay before the forest fire burnt it, and then the unknown interval between that time and the arrival of the Silver Fir seed." In this case the durability of the wood had probably been increased by the charring endured by the trunk in the forest fire. In the vexed question of nomenclature, Messrs. Veitch adopt the generic name *Abies* for both the Spruce and Silver Fir family. There seems to be no reason against adopting this, and the best authorities are said now to favour it; still, we cannot help regretting a departure from the very simple classification by Gordon in his standard work the "Pinetum," by which Spruces and Hemlock Spruces are ranked as *Abies*, and Silver Firs as *Picea*. But this may be only prejudice and unwillingness to change on our part. Before leaving this part of the subject we would call attention to the following property of Pine roots, which, owing to the fact that none of the Fir or Pine tribe spring from the root when cut over, is probably not generally known.

"The vitality of the roots of Coniferous plants is remarkable, especially in the Fir and Pine tribe. Many instances have been observed of (*sic*) which the roots not only live, but continue to grow for many years after the trunk has been cut down."

The singular fact is noted (p. 37) of the absence of Coniferous plants from the Indian Peninsula and from Central Africa, unless indeed the extraordinary *Welwitschia mirabilis* be held as representing the genus in the latter continent. There is no apparent reason for these considerable exceptions to the otherwise universal geographical distribution of cone-bearing plants, for, as Dr. Hooker says, "Coniferæ are found in hot and dry and in cold and dry climates, in hot and moist and in cold and moist regions."

Although in Great Britain only three species of Conifers are indigenous, the Scots Pine, the Yew, and the common Juniper, yet it is found that in our climate, as our author informs us, a greater number of this family are found to thrive than in any other. To this may be attributed in a great measure the popularity which they enjoy.

The book before us is copiously illustrated. The botanical drawing of fruit and foliage are all that could be desired, but the woodcuts of trees and scenery, though faithful to a fault in topography and accuracy, are not very meritorious in an artistic sense. In the portraits of specimen trees, *e.g.*, the Florence Court Yew on p. 303, the Dropmore Araucaria opposite p. 194, and the magnificent *Thuja gigantea* opposite p. 257, it would have added much to their value if some figures or still life had been introduced to show the scale. But on the whole there is little room for adverse criticism. The book is a thoroughly useful and practical one. If scissors and paste have been used in its composition it has been with skill and intelligence, and we think that many of the errors into which cultivators have fallen may be avoided in future and even corrected in the present by following the instructions laid down by the author in part iii.

We recollect being struck by the absence of intelligent system in planting Conifers displayed at a beautiful place in the neighbourhood of the Highland frontier. The mansion house stands on a level plain on the banks of a stream which issues from a densely-wooded gorge, which is simply a cleft in a sandstone, and, higher up, a limestone, hillside. The scenery in this gorge is exceedingly romantic, and offers innumerable opportunities for skilful and effective planting. These, however, had not been taken advantage of. The glen was choked from one end to the other with dense copse, and that which might have been formed into one of the most striking and beautiful Pineta in the world was simply a very beautiful copsewood. Nor was this all; great pains and expense had been undertaken to plant a large and varied collection of Coniferous plants on the flat alluvial plain surrounding the mansion house. The effect, as may be imagined, was not happy. Those stately and noble forms, which ought to have been scaling the precipices behind the house, were dotted about inappropriately on the tame level ground, and an opportunity was marred such as is offered to few, and such as might have been avoided by the observance of the precepts in our authors' pages.

When Virgil wrote, *Fraxinus in sylvis pulcherrima, pinus in hortis* (The Ash is the fairest tree in the forest, but the Pine in the garden), he was writing of the Pinus Pinea, or Stone Pine, and not of those towering forms with which the industry of our collectors has given us the means of adorning our hillsides.

SALMONICEPS.

NOTES OF THE WEEK.

New Double Bouvardia Alfred Neuner.—The first blooms we have seen of this much-talked-of American novelty opened the other day in the Swanley Nurseries, where Messrs. Cannell have now plants of it in fine condition. There is no mistake about the flowers being double or about their attractiveness; they are pure white, and each pip is doubled after the manner of a double Tuberose. The habit of the plant is dwarf and robust, and it seems to be remarkably floriferous, as nearly every small shoot bears a truss of bloom. This double Bouvardia will undoubtedly become a popular plant, and be especially valuable for cutting purposes, the exquisitely delicate flowers, like those of the single kinds, being admirably suited for button-hole bouquets.

The English Gladiolus.—In last week's GARDEN you speak of Gladiolus communis as the plant growing in the New Forest and the Isle of Wight. I believe it to be illyricus. The flower is very much smaller, and the stem scarcely half the height of communis, and during the whole time I have had it under cultivation it has shown no disposition to enlargement of flower or stem. I am sorry to say that my patch has gone wrong this season, and I am therefore unable to send a specimen. There is greater difference between the native plant and communis than between communis and byzantinus.—J. H. ARCHER-HIND, *South Devon*.

— Gladiolus communis is said (p. 616) to be a native of the Isle of Wight and the New Forest. This is a mistake. The species which, to use the words of a friend whose letter I have now before me, "grows in the greatest profusion" in some parts of the New Forest, and has been found sparingly in the Isle of Wight, is G. illyricus. G. communis is a totally different and much handsomer species, which has never occurred in Great Britain. I have several other closely allied species in cultivation, e.g., G. byzantinus, segutum, and triphyllus.—H. HARPUR CREWE, *Drayton-Beauchamp Rectory, Tring*. [If our correspondents refer to Bentham, they will find the British species given as communis, who gives illyricus as a synonym, but the plants are distinct.—ED.]

Double Dwarf Sweet William.—The deep velvety crimson-flowered kind known as Dianthus barbatus magnificus is by far the finest we have met with among the Sweet Williams. The heads of flower, which are large, are produced in profusion, and the colour, *en masse*, rich and effective. Its dwarfness, too, is a recommendation, and it is, moreover, a vigorous grower, and soon forms a good tuft. It originated, we believe, in the Hale Farm Nursery, Tottenham; in fact, it is known more as Ware's Double Crimson than by its other name. In this nursery some large beds of it now in full flower are wonderfully fine.

Campanula nobilis and C. punctata.—Mr. G. F. Wilson brings us specimens of these interesting species to show that they are distinct. They seem to be so, but in a botanical sense mainly. As a garden plant the last mentioned has no value that is not possessed by C. nobilis. By the way, this has been a long time in cultivation without becoming popular. Its sombre colours are against it, and really it does not seem to have much merit except in size and quaintness. We have tried it indoors, a test which often shows a plant to advantage that may be passed by without much notice in the open garden, but the noble Hairbell does not seem to come out well in any way. At one time we grew it, and thought it a wonderful plant, but we are gradually seeing the need of greater care in selection with a view to finding room for the vast number of good things that must find a place.

Fraxinella.—A lady sends us from Scotland a tall spike of the Dictamnus Fraxinella, which, oddly enough, often fails to do well in some gardens. She says it has "various good qualities. It is perfectly hardy, requires no support, blooms long, stands 33 in. high, gives out a sweet odour, and is as beautiful in seed as in flower," in all of which we fully agree. We hope she has the white as well as the coloured kind which she sends us. Wherever our old friend does well we like to see it growing, but it has a habit of dwindling or not making such a strong growth as with Mrs. Galloway, Carse House by Alloa. We do not hear enough from our Scotch friends, who seem to have a peculiarly good climate for many favourite

plants. There, however, some of our good southern plants will not even open their flowers.

Gaillardia grandiflora maxima.—This is by far the finest Gaillardia we have yet seen, much finer even than the largest varieties of S. aristata. The flowers are some 3 in. across and deep yellow, produced on stout erect stalks, from 1 ft. to 1½ ft. high. It is, we believe, a true perennial and a fine addition to hardy plants, as it is excellent both for the border and for cutting purposes. It is, we believe, one of the numerous introductions in the class of plants of Mr. Thompson, of Ipswich. We have seen it finely in flower at various places during the week, but best in Mr. Whitehead's garden at Southwood, Bickley, and the Hale Farm Nursery, Tottenham.

Choice Hardy Flowers.—Among the choicest of the hardy plants in flower at Southwood, Bickley, are the following: Urospermum Delachampi, a composite with large sulphur-yellow flowers; Calamintha alpina, a small growing bushy plant, with a profusion of violet-coloured flowers; Achillea moschata, a dwarf composite with finely-cut leaves and flat heads of white flowers, very showy on a rockery; Craspedia Richei, with dense globular heads of yellow flowers; Pratia angulosa, a white-flowered Lobelia-like trailing plant; Eschscholtzia tenuifolia, an annual with pale yellow flowers much smaller than those of E. crocea, which, however, are profusely produced, and the foliage is finely divided; Nierembergia rivularis, with its pure white cups—this plant was in a damp heavy border and thriving finely; Gentiana bavarica, beautifully in flower, growing in a flat peaty border like the preceding; Chrysobactron Hookeri, with golden spikes of bloom, a very showy bog plant; Senecio absinthifolius, with finely-cut foliage and deep orange-coloured flowers; Mertensia sibirica alba, a white variety of this beautiful Boragewort; Gentiana auvernensis, a species in the way of G. Pneumonanthe, very showy and dwarf; and Papaver umbrosum, of which there were large tufts, which on account of their brilliant colours are attractive from all parts of the garden.

Finely-flowered Saponaria ocymoides.—The largest plant we have yet seen of this pretty pink-flowered perennial is in the Swanley Nurseries. It is a huge rounded tuft grown from a small plant, now 5 ft. in length by 3½ ft. in breadth, and about 1½ ft. high, the whole thickly covered with bloom.

Californian Brodiaeas.—During the week we have noticed some of these Californian plants in flower, and they well merit a word of praise. They consist of B. volubilis, a singular plant, possessing the peculiar character of a twining flower-stem, which grows to even 12 ft. in height in its native habitat, but in cultivation its average height is 3 ft. The flowers, which are rosy pink, terminate the twisting stem in a dense cluster. It is also called Stropholirion californicum. B. coccinea, a very showy plant, has long tubular flowers of a deep red tipped with green, and borne in umbels on the ends of tall, slender stalks. It was figured in THE GARDEN (Vol. XI., p. 110). It is known as the Crimson Satin flower, and also scientifically by B. Ida-Maia and Brevoortia coccinea. The now well-known B. congesta has a pretty companion in its white variety, though yet unfortunately too rare. When seen growing together the deep lavender tint of the type and the pure white of the variety have a very pretty effect. These may all be seen finely in flower in the Hale Farm Nurseries, Tottenham, where B. coccinea is especially fine a bed a yard or so square being in full blossom. All are quite hardy if planted on a well drained border. We almost omitted to mention Bloomeria aurea, which is also nicely in flower; it is a small tender plant with umbels of bright yellow striped with brown.

The Cretan Mullein (Celsia cretica).—This old plant seems to be emerging out of the botanical stage, so to say. It used to be seen at one time in the frames or greenhouses of a botanical garden, and rarely good, but now, as grown in some of our collections, it is really a distinct and handsome plant. Last year we saw a handsome plant of it in Mr. Nelson's garden at Aldborough, growing on a heap of loam as glossy and as fine in form as a plant could be. Now Mr. Kingsmill brings it to us in the same state with fine solid golden flowers; so grown, it is well worthy of a place. As to its duration and culture in such a state and its hardiness, perhaps some of our friends will kindly inform us.

Fine-foliated Begonias.—We are pleased to see that a reaction has set in with regard to these handsome-leaved plants, for we notice that they are becoming more plentiful in nurseries than hitherto. We have not, however, seen them so fine as at the Swanley Nurseries, where there is a full collection of varieties, new and old, occupying a span-roofed house nearly 100 ft. long. These principally belong to the Rex class, among which some of M. Crousse's new varieties are extremely beautiful. Some are overlaid with a silvery lustre, others with a bronzy hue, and many are of the brightest emerald green, margined and zoned with crimson. Jules Chrétien

is remarkable for the suffusion of claret tint in the leaves, which renders it distinct from most of the others. *Nivosa* has the leaves profusely spotted with silvery dots on a green ground. The variety is infinite, and there is a wide range of variation also with regard to the habit of the plants. These *Begonias* are particularly suitable for the adornment of rooms, plant cases, &c., where they thrive during summer as well as in the greenhouse. Passing from the fine-foliaged *Begonias* to the now popular section—the tuberous kinds—that are grown for the beauty of their flowers, we find them grown here on the same extensive scale. The collection represents nearly, if not quite, every sort yet raised worth growing, and these occupy a span-roofed house 150 ft. in length, and when in flower the effect is very striking. The single kinds are, of course, the most numerous, and for the double kinds it is found a difficult matter to keep pace with the demand.

Fire Pink (*Silene virginica*).—This brilliant North American plant is uncommonly fine this year in the Hale Farm Nursery, where it is grown in large numbers, both in the open air and under glass. The flowers are about 1 in. across, and of a fiery scarlet hue. The stalks, which are somewhat slender, lie on the soil and the blooms are borne a few inches above it. It succeeds well in the open air on a well-drained rockery, but it is one of those plants that require to be looked after, particularly in winter, when it is liable to "damp off" from excessive moisture. It is a native of open woods from New York southwards, and flowers there from June to August.

Pæonies.—Mr. Stevens is the most general lover of flowers known to us. This week his collection of herbaceous Pæonies is very rich and varied. No good garden is complete without a group of these; not indeed in the middle of the parterre, but in a quiet corner on the Grass, either in a good bold bed, say 12 ft. across, or in several smaller groups on the turf. In the first case the plants should have plenty of room, and the soil, rich and deep, would be excellent for a few *Pompone Dahlias* between the clumps to succeed the Pæonies; a few dwarf flowers might also fringe the bed in spring.

Lewisia rediviva.—Of this rare North American plant there are some fine flowering examples in the rock garden at Southwood, Bickley. It seems to succeed well in a fully exposed position planted near some large stones. Its delicate pink flowers, some 2 in. across, are very showy and quite distinct from those of other rock garden plants. As an instance that the plant succeeds under contrary modes of treatment, we might mention that it is also in flower in the Hale Farm Nursery, Tottenham, planted in a peaty soil, in a shady and somewhat moist situation. As there has been some discussion of late with regard to the culture of this plant, these facts may be interesting.

The European Globe Flower.—Through your kindness and that of your readers (whom I here thank, as some of them have not sent their addresses), I have received specimens of the wild Globe-flower from eight or nine different places—none of them south of Shropshire or north of the Tweed. It seems to be generally distributed over the north of England and North Wales. Its flowers are, as I thought, much flattened and the petals much incurved, nearly hiding the stamens. In open ground it seldom exceeds 1 ft. in height in a wild state. No variations from the type are sent or mentioned by any of the senders.—C. W. DOD, *Osborne House, Llandudno*.

Alpines from Berwick.—The alpine flowers from Mr. Muirhead have all the freshness that mountain flowers should have, and are blooming after the same kinds about London have passed away. Mr. Muirhead proposes to collect species that flower through the summer months from May onwards. Like other classes, they abound in spring flowers, and good late kinds, like the trees and shrubs flowering after the crowd that bloom with the May, are valuable in prolonging the beauty of the rock garden through the summer months.

Pelargoniums at Swanley.—The housefuls of *Pelargoniums* at Messrs. Cannell & Son's nurseries, Swanley, are now at their best, and form one of the most brilliant floral sights imaginable. The sections consist of zonals, single and double, fancy, and shows, each section occupying a span-roofed house 100 ft. in length. The zonals are of course the brightest coloured and make the greatest show. Among the newest kinds are *New Guinea*, *Right-ahead*, *Eclipse*, *Tip-top*, *Mrs. Windsor*, *Wheel of Fortune*, all of the highest merit in their respective colours. *Henri Jacoby* is a very fine, deep crimson, large in truss, and a splendid bedder. *Zulu* is a fine new bronze zonal in the way of *Black Douglas*, but a great improvement of that variety, as is likewise *Swanley Bronze*, which will make an effective bedder; the latter is in the way of the *Shah*, *Lemoine's* new kinds are far ahead of older varieties of similar colours. Among

the best now in flower are *Charles Darwin*, a double flowered variety, certificated last week by the *Pelargonium Society*; *La France*, a kind with large trusses of finely shaped single blooms of the most intense violet; *General Farre*, *Ministre Constans*, *Barthélemy Saint Hilaire* all fine doubles, and *L'Élysée* and *Progrès* beautiful singles. *Mrs. Parker* is a fine silver-edged leaved variety, with large trusses of rosy pink double flowers that are extremely attractive. The singular variegated sort named *Freak of Nature* is very distinct, quite different from *Happy Thought*, and a great improvement on it. It has a fine appearance in large plants. The new Ivy-leaved kinds are now engaging some attention; they are lovely plants and distinct in habit from other *Pelargoniums*. The new kinds are chiefly of hybrid origin raised by M. Lemoine, of Nancy. Amongst the single kinds are *Beauté de Lyon*, *Gem*, *Princess Thyra*, *Diadem*, and *Mrs. Cannell*, the latter a pleasing, deep mauve colour. Among the double kinds, the finest are *Gloire de Orleans*, *Galilee*, and *Mad. Crousse*. These are only a few of the host of varieties represented here, but they are among those that most attracted us.

Floral Decorations at Flower Shows.—At the Botanic Fête last Wednesday a marked feature was the floral decorations, the peculiarity of which was that no sign of simplicity or unity of design was visible. A false ideal has been gradually, but most effectively pursued by exhibitors. Where a few vases of flowers carefully chosen ought to be there is a crowd of flowers, often hundreds, carefully packed together, and very well disposed to neutralise all good effect. The conventional three trumpets were everywhere arranged with skill with many beautiful plants, and with much waste of time, but not one of them would be considered fit to be seen in any tasteful house. No first prize was awarded by the judges in the principal class; and the exhibitor who won the first prize in the "not furnished tables" had as many flowers on his table as would have sufficed for half a dozen tables! Yet his arrangements were so good, that he won the prize. Fewer of his smaller vases would have done so easily. A complete change is very necessary in such exhibitions if they are to illustrate what is considered good taste in such compositions in the best houses, and not mere crowding of many pretty flowers and some of the least desirable glass and china designs imaginable. There was much costly and pretentious material of this sort, for which the best wish one can have is that it may at no distant day be broken up and form the material for the bottom of a good walk. Baskets, brackets, and buffets were as bad as they could be.

Perennial Larkspurs and Golden Elder.—So many noble flowers came in during the past week that no one of them can be said to be the flower of the season; but the spikes of magnificent seedling *Delphiniums* from Mr. Kingsmill, with the flowering part of the spikes alone 3 ft. long, cannot be excluded from a high place even in the presence of the Rose. Mr. Kingsmill tells us that these produce a rare effect growing through and near some tufts of the *Golden Elder* were better than the well known mixture of *Delphinium* and *Silver Maple*.

Orchis foliosa.—This hardy Orchid still seems to keep a leading place, though it will probably have competitors as soon as the various Orchids introduced of late get firm hold. *O. foliosa* seems to thrive equally well in many different parts of the country whether on the stiff soil of the garden at Eastcott, or in the freer soil of the Edinburgh Nurseries. About London the plant is now in perfection. Some of our own finer native Orchids are worth a place beside it.

A Free-blooming White Cactus.—*Phyllocactus niveus* of Mr. Peacock's collection is a very free-blooming kind, good in habit, and dwarf, and easily grown. It has a charming effect by artificial light. The best flowering Cacti would well repay for cultivation, and bring a new feature into our collections. Mr. Peacock has done good service to horticulture in preserving many species which otherwise would not now be obtainable. Many Cacti are more curious than beautiful, but, on the other hand, there are some which are as fine as anything exhibitors grow, and more useful than most plants for window and room decoration.

Campanula pulla.—This charming little alpine Harebell is uncommonly fine this year. During the week we have seen broad tufts of it at Kew, Bickley, and Tottenham in full flower, the drooping rich purple bells being borne in great profusion. It seems to delight in a thoroughly exposed place in a mixture of peat and loam.

Three Columbines.—*Aquilegia grata* is a soft small mauve flower throughout; *A. truncata* red, and these are accompanied by a flower of the green kind (*A. viridiflora*), which has still a few blooms. Mr. Kingsmill says it is the earliest to bloom with him. Its delicate Honeysuckle fragrance seems constant.

COUNTRY SEATS AND GARDENS OF
GREAT BRITAIN.

HATFIELD.

AMONG the comparatively few places now remaining in this country where the antique style of gardening is still retained, Hatfield, the residence of the Marquis of Salisbury, is justly one of the most celebrated. Though not perhaps so ancient as some places, yet it possesses considerable historical interest. It is situated in one of the most beautiful parts of Hertfordshire, some twenty miles north of London. The house, built some two and a half centuries ago, occupies the highest ground in the locality, and hence far-reaching views are obtained from it in every direction. It is a stately structure, and one of the finest examples of the Elizabethan style of architecture extant. Of its four sides, which directly face the cardinal points, the south is the principal front, and, like the north, is approached by stately avenues. The west overlooks the original palace and the town, while from the eastern side the eye is carried over several terraced plateaux of geometrical gardens across an artificial lake to the most beautiful part of the park, well stocked with deer, and studded with noble trees rising in summer from amongst tall Bracken. Everywhere, except in the park and other unkempt parts, straight lines and symmetrical shapes predominate, but though formal and scarcely in accordance with our modern views of garden design, everything is in perfect harmony with the character of the place and the peculiar style of the mansion. There is a bold expression of grandeur in its noble avenues of trees, and in that one particularly

that leads from the north front of the house, in which the trees are patriarchal, their great heads forming living cathedral-like naves.

Trees.—Some of the finest tree growth for which Hertfordshire is famous exists at Hatfield. The park abounds with gigantic trees, and though numbers of them are decrepit from old age, their huge gnarled boles show where many a noble limb, a tree in itself, has been amputated. The

principal kinds that flourish at Hatfield are the Oak, Elm, Beech, Hornbeam, Yew, Thorn, and Limes. Among the Oaks there is one of unparalleled interest, connected as it is with the nation's history, so to speak. This is known as Queen Elizabeth's Oak, beneath the shade of which the Queen was sitting, as the story goes, when she received the first news of the death of her sister Mary. The age of this tree is unknown, but that its race is nearly run is now too evident; it is but a mere decayed trunk, the only indication of life being the few twigs that spring from the top. The hollow part of the stem is filled with a composition of chalk and pitch in order to protect it from the effects of the weather, which otherwise would, doubtless,



English Elm in Hatfield Park. Drawn from Nature, February 14, 1881.
Height, 130 ft.; circumference, 27 ft.

have long ago destroyed it. It stands in the line of the avenue going from the north front of the mansion, and it is evident that when the avenue was planted the same interest was attached to the tree as now, as the trees on the opposite side of the road deviate from the straight line, presumably in order to allow for the spread of the then large limbs of this royal Oak. Another singular point, too, is that the avenue turns almost at a right angle when it reaches this tree, so that it is in an angle, and is made the centre of attraction. There are several other Oaks of interest at Hat-

field; for instance, the Lion Oak, which girths some 30 ft., and the two Oaks planted by Queen Victoria and the Prince Consort, which, however, are mere pigmies compared with the former. The Elms attain wonderfully fine growth in the deep loamy soil in this park, particularly the English Elm (*Ulmus campestris*), of one of which we give an illustration. This tree is one of the finest we have ever met with; it overtops every surrounding tree, though it stands in a sort of dell. Its gigantic stature and symmetrical growth render it a noble object, seen from all parts of the park. Its height is 130 ft., and it has a girth of 27 ft. at about 4 ft. from the ground. Mr. Marnock, whose acquaintance with trees is greater than that of most people, thus speaks of the Elm:—

“In any attempt to discuss the relative value of any special tree or class of trees with the view to their picturesque beauty and fitness for the effective uses to which they may be applied, the conditions are necessarily so varied as to be far beyond the limited boundary of the present notice, restricted as it must be to a few general remarks bearing on the quality and properties of the Elm as an ornamental tree. To see the Elm and some other round-headed trees, such as the Oak, the Chestnut, and others of similar habit in greater or less quantity in their maturity and venerable grandeur, it would be necessary to visit some of the ancient parks and mansions as early as the time of Henry I. or William the Conqueror, when the taste for planting and the introduction of the English style of landscape gardening began to be sparingly patronised by the Court and the more opulent nobility. Few sights can be more instructive and interesting than a visit to some of the more notable of these ancient memorials of the past. A mansion, owing to various associations, may be both interesting and instructive as a creation of human skill, but what in a matter of this kind is the highest human effort in comparison with the interest and awful grandeur of a living tree of five, seven, or more centuries' growth? In Blenheim, one of the grandest and perhaps earliest of our English parks, with Nonesuch, Hampton Court, Hatfield, Greenwich, St. James's Park, Pain's Hill, Claremont, and others more recent, though still ancient, may be found all these trees of great age, especially Elms. It will be noticed that these remarks refer to a period when the improvements of the park and landscape scenery were mainly confined to the royal domains and a few of the more wealthy nobles. Coming down to about the middle of the seventeenth century, we have professional and amateur landscape gardeners, such as Bridgeman, Loudon, Wise, Batty, Langley, Dr. Blackwell, a physician, Miller, Kent, &c.; and still nearer our own times, Brown, Repton, Uvedale Price, and many others. As a result of the common efforts of the landscape gardener, the taste for and love of trees has been during the present century vastly extended, and its happy and civilising influence widely felt.

“As a park tree, when grown in the open and when it has attained full maturity, the common field Elm is an object of great picturesque beauty. It is sometimes seen growing three in a group quite close together. Whether the result of accident or design, the effect is always highly picturesque. In the same way it is occasionally met with forming one of a group with three or more other kinds, such as Birch, Oak, Acacia, or common Thorn, with two or three of the kinds standing close together, and with two or more at unequal distances apart. Whether in mixed groups or single trees, any one of the better varieties of *Ulmus campestris* can never fail to be highly attractive and picturesque on open park ground, especially when the latter is more or less undulating.

“As a picturesque tree the Elm has not so distinct a character as the Oak, but in outline it partakes so much of the character of the Oak, that when it is rough and old and in full leaf it may easily at a little distance be mistaken for the latter. No tree is better adapted than the Elm to receive grand masses of light. In this respect it is superior to the Oak, nor is its foliage productive of so much shadow as are the heavy kinds; its leaves are small, and this gives it a natural lightness. Its branches generally hang in large loose picturesque tufts. The Elm is one of the first trees to welcome the early spring with its light and cheerful green, while in autumn its yellow leaf mixes kindly with the orange of the Beech and the ochre colour of the Oak, and other fading hues of the wood.”

Other trees, varying from the stately Beech to the stunted Thorn, may be met with at every turn in this park. The avenue leading from the south or main front is composed of four lines of Limes, and the space between the lines being unusually wide and of greensward, with the exception of a carriage drive, the effect is very good.

Geometrical Gardens.—These surround the house on all sides. On the west is a quadrangular plot having a central water basin with fountain, from which radiate numerous panelled borders, all designed with geometrical precision, and which, in summer, are gay with bedding plants. At each of the angles is a Mulberry tree of great age, said to be among the first introduced in the country. This garden is surrounded by a piazza of Lime trees, which are trained so as to form a tunnel of foliage, cool and shady in summer. The trees are planted some 10 ft. apart, and though they are of great age none of their stems are large. The clipping and training of these Limes in order to keep them in good condition occupy the time of one man almost continually. Near to the west garden is the Rosery, a sunken plot planted with a fine selection of Roses in geometrical beds.

The east garden is the finest of all. It is a large, level plot, overlooked by a broad gravelled terrace, which is supported by a huge wall, now overrun with Ivy and other climbers. The beds are geometrically cut out, and surrounded by high Box edgings. When at its best, in the height of summer, this garden has a fine effect from the house or terrace. Beyond this is another similar garden, which was once devoted to sweet-scented flowers, “old-fashioned” and modern, though now it does not appear to be kept for such a purpose. The idea is, however, excellent, and one which should not be lost sight of in such an extensive place as this. Near here is the maze, once considered an indispensable adjunct to every large pleasure ground, but now merely retained as a curiosity. The lake below is some 4 or 5 acres in extent, and some parts of it are extremely picturesque, particularly the opposite bank adjoining the park. The Portugal and common Laurels about this part form quite a feature, and so do the Hollies and several other evergreens, all being of unusually large size.

The Vineyard.—This name is applied to a portion of the park where, according to tradition, there once existed a Vineyard, though the date about which it flourished appears to be somewhat involved in obscurity. Be that as it may, no trace of Vines now exists there; it is nevertheless one of the strangest and at the same time one of the most beautiful parts of the domain. It is situated at the termination of the avenue radiating from the north front of the house, and occupies a steep declivity overlooking the valley of the Lea, which at this point, and for about half a mile each way, has been widened, so as to have the appearance of an oblong lake. The Vineyard is doubtless unique, and near it the Yew tree may be seen in all sizes and shapes. In one part, where planted densely, it is trained so as to form cavernous archways radiating in all

directions from one centre, so strangely grotesque that one can scarcely realise that trees can be made to assume such forms. In another part they are perfectly solid walls of greenery down to the turf, and here it is, when looking from across the Lea to the Vineyard, the finest effects are obtained. On the crest of the slope is a broad gravelled terrace, flanked on either side by a dense hedge of Yew clipped so as to form battlements, while immediately below the terrace is a dense growth of Juniper and some fine rows of modern Conifers, chiefly Cupressuses and Thujas.

Directly opposite the Vineyard on the other side of the Lea is the old kitchen garden, a goodly piece of ground enclosed by walls, but now used chiefly as a nursery for forest trees, though there still remain some fine fruit. A stream runs through here, and was found invaluable when used as a kitchen garden. Formerly the cottage on the crest of the Vineyard was occupied by the head gardener, who, to get to the kitchen garden, had to descend the steep slope and cross the river in a boat, and even now this is the only communication between the mansion side and the kitchen garden. On the slopes of the Vineyard are some great Copper



Queen Elizabeth's Oak at Hatfield Park.

Beeches and other trees, which, combined with the Yews, constitute a highly picturesque feature when viewed from the opposite bank of the river. In a tower-like building in the old kitchen garden, formerly used as a young gardeners' lodge, there used to be some fine old Vines trained against the walls, where their fruit used to ripen thoroughly. A gravel path surrounds the building, and under it were the roots of the Vines, which had no attention as regards watering, but due regard was paid to training and thinning the branches. Sweetwaters used to flourish uncommonly well in this position.

Pinetum.—At a short distance from the mansion there is a well stocked Pinetum, containing some noble examples of Coniferous trees. Among these we noticed *Abies Douglasi*, *cephalonica*, *Smithi*, one of the finest of the Spruces; *Pinsapo*, which by the way has been much injured during the past two winters; *Pinus Sabiniana*, a grand long-leaved Pine; *P. excelsa*, Red Cedars, *Cryptomeria japonica*, Silver Firs, and others. These are on a fine stretch of lawn, and form quite a distinct feature. Near the Pinetum is a conservatory about 200 ft. in length, a narrow structure not very ornamental

in its exterior, but containing some remarkably fine plants inside. The Camellias are very fine, forming spreading bushes, all in the best of health; likewise *Pittosporums*, *Brugmansias*, *Habrothamnus*, *Luculia gratissima*, *Callistemon rigidus*, *Acacia dealbata*, all of a size rarely met with in private gardens; while the roof is ornamented with all kinds of elegant climbing plants, amongst which a fine example of the sweet-scented white *Mandevilla suaveolens* is very conspicuous. Adjoining the conservatory is a stove, on the roof of which is a grand plant of *Stephanotis*.

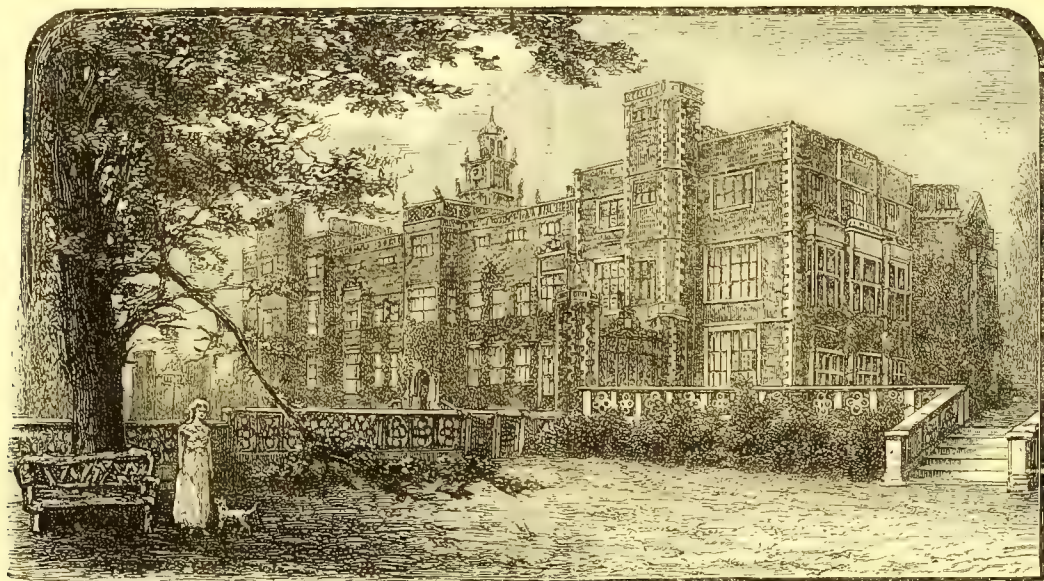
Kitchen Garden.—Here culinary gardening in all its branches is carried out on an extensive scale and in a thoroughly energetic manner. The new kitchen garden (called the new in contradistinction to the old one already referred to) has been formed about a dozen years. It contains some 7 or 8 acres, and occupies an open and rather uneven piece of ground, which, however, is in some respects an advantage, as the slopes which face north and south are better adapted for retarding or forwarding crops than level ground. It is surrounded by high, concrete-faced walls, having supporting buttresses placed at short and regular intervals, and the trees, instead of being nailed, are tied to wires, which may be tightened at will. There is a fine assortment of trees, and all kinds seem to thrive and fruit well without the assistance of protecting copings. A remarkable feature in regard to this garden is the absence of transverse walls, and, consequently, it has a somewhat bare appearance. There are, however, excellent espaliers, which in a great measure take off the flat appearance. There is a good supply of water, that indispensable, though often insufficient, adjunct to a well-arranged kitchen garden. The broad and firm walks which traverse the garden is another good feature here, though this, too, is often treated as a secondary consideration, even in high-class gardens.

Fruit Houses.—As might be expected in such a place, these are numerous and spacious, in order to meet the large demands made upon them. They are all compactly arranged on a level space adjoining the kitchen garden, and the necessary excavations which had to be made in order to obtain the level render this space more sheltered than it otherwise would be, an advantage, particularly with regard to forcing houses. It is surrounded by walls, which form a back for the lean-to houses. The principal block of buildings consists of about eight span-roofed structures running north and south. A conspicuous fault in these otherwise well-adapted houses is that they are too near each other, so near, in fact, that one shades, to some extent, those next it. Two or three of these houses are occupied by Peaches and Nectarines, and fine examples of skilful culture they are; and one point we noted was that Mr. Norman is no advocate of the conventional annual dressing of the branches with a clay compound, but he speaks highly of Fir-tree oil as a dressing, or, in fact, as an insecticide for all purposes. The trees are planted on both sides of the houses, and form a kind of archway, and the healthy appearance of the trees, and the well-ripened wood furnished with fine crops of fruit, indicate that their requirements are well understood, notwithstanding the unpropitious seasons the British gardener has had to contend with lately.

The Vineries, seven or eight in number, are ranged against the enclosing walls facing south. As with the Peaches, so with these, there is evidence of high-class culture. Most of the borders have been lately renovated, and the Vines are now in first-rate bearing condition. Numerous kinds are grown; Muscats and Black Hamburgs, of course, have separate structures, but in some houses there is a good intermixture of such excellent kinds as *Madresfield Court*, which, by the way, is grown admirably here; *Black Prince*, *Gros*

Colmar, Alicante, and Lady Downes; the two latter have a house to themselves and form the latest crop. At the back of the Vineries is a room specially fitted up for preserving Grapes efficiently heated and thoroughly ventilated, and in it we saw in March a wonderfully fine lot of Black Alicante, Gros Colmar, Muscats, and Lady Downes in a fine state of preservation, plump in berry and otherwise well finished. There is likewise ample provision for Figs, Melons, Cucumbers, and Tomatoes. The latter are specially well grown in one of the span-roofed houses, 50 ft. long, where they are planted 1 ft. apart in the parallel borders flanking the path, and are trained to the roof, which, moreover, has to do service for Melons and Cucumbers besides; so, virtually, there are three crops taken from one house in a year; winter Cucumbers are succeeded by Tomatoes, and these by Melons, and so on in rotation. Stamfordian Tomato is the favourite sort here. Pot Strawberries are a special feature, and for their culture a well adapted hip-

possess real decorative merit are selected. For example, among Orchids such valuable and well proved kinds as *Dendrobium nobile*, *Devonianum*, *Wardianum*, *Pierardi*, *Cœlogyne cristata* and *flaccida*, *Pleione lagenaria*, *Calanthe Veitchi* and *vestita*, *Lycaste Skinneri*, and the neglected *Phaius grandifolius*. These are not merely represented by single specimens, but in numbers, so that in the flowering season the flowers may be cut in large quantities for room and table decoration, for which there is a great demand throughout the year. A noteworthy fact is that with *Dendrobium nobile* a numerous stock of plants has been "worked up" within the short space of three or four years, which is an instance of what can be done with Orchids when properly cared for. Of the unusually fine growths the Dendrobes and other Orchids produce here we had occasion to make notes some few months ago. There is no fuss made about the Orchids, such as devoting a special house to them, but they are grown with other stove plants, and finer examples of *Calanthes*, *Phaius*,



Hatfield House (north front).

roofed house 100 ft. in length has been recently erected. Several thousands are annually put under glass, and as a proof that they are grown well, it need only be mentioned that the Strawberries from this garden have of late years almost invariably secured first prizes at the London fruit shows. For earliest forcing Black Prince and Vicomtesse Héricart de Thury are chiefly used, while President, Sir Charles Napier, and Sir Joseph Paxton follow. Mushrooms are grown wonderfully fine, and are cut by the bushel two or three times a week in the early part of the year. The house in which they are grown is large, and constructed in the ordinary manner, and well heated, and ample provision is made in open sheds for collecting and preparing the horse manure for the beds. The spawn used is Veitch's, which is highly spoken of by Mr. Norman. At the time of our visit every available space in the house was taken up by Sea Kale, Rhubarb, Chicory, &c.

Plant Houses.—Contrary to the general rule, that where fruit is grown well plant culture is deficient, the plants here are quite as skilfully managed as the fruit, and fully half of the houses are devoted to them; but only such plants as

and *Cœlogyne*s we have seldom met with. Among other tender plants grown in quantity for decoration are *Aphelandra Roeziana*, grown by the hundred on shelves close under the roof, *Calla æthiopica*, of which about 500 are grown; these when in flower are a grand sight. They are planted out in summer, and afterwards lifted and potted in 3-in. pots. The aim is to get about 150 of these in flower by Christmas time, when they are invaluable. *Eucharis amazonica* are as fine as we have ever seen; they occupy the entire side of a span-roofed house, and yield flowers more or less numerous throughout the year. In spring the houses are gay with *Euphorbias*, *Poinsettias* (of which there are 1000 grown), *Plumbagos*, *Cyclamens*, *Azaleas*, *Primulas* (single and double, the latter being particularly fine), *Daphne indica*, *Lachenalias*, *Epiphyllums* (which are remarkably well done), and a host of other plants, but none that are not suitable for general decorative purposes. Then there are houses occupied by fine-foliaged plants, such as *Crotons*, *Dracænas*, *Palms*, *Ferns*, &c., and of the latter we noticed a pit 50 ft. long filled with unusually

fine examples of *Adiantum farleyense*, a Fern that is not so oftengrown in quantity for indoor decoration as it might be. Of course *A. cuneatum* and the delicate *A. gracillimum* are represented largely. *Conoclinium coelestinum* is found to be an invaluable spring-flowering plant, and certainly its broad head of deep mauve flowers is highly effective. For cutting purposes there are huge plants of *Clerodendron Thomsonæ* and *splendens*, *Rondeletia speciosa*, *Stephanotis*, and similarly useful plants. A special feature is made of Violets, single and double, and several of the heated frames which range between the span-roofed houses are devoted solely to their culture. The Czar and Neapolitan are great favourites, and comprise the bulk of the stock. One other plant remains to be noticed, *Nerine Fothergilli*, which is grown to perfection in a manner such as this beautiful bulbous plant deserves. When in flower, the large heads of crimson-red flowers are extremely fine.

Heating.—Some few years ago when heating glass structures by means of lime burning was much talked of, Hatfield was one of the few places in which it was carried out. Cowan's principle was practised on a somewhat extensive scale, but now it is entirely abandoned, and the only traces of it are the deep excavations which the system necessitated. The heating is effected now by means of powerful saddle boilers, some three or four in number, which do the work efficiently, though the superficial area heated is enormous.

W. GOLDRING.

GARDEN THOUGHTS.

I SAW yet one more lovely garden, some think the loveliest in Cornwall, Penjerick, a deep long glen of beauty, from its peaceful home to the sea, rich in trees and shrubs, coniferous, floriferous, evergreen, deciduous, rarely seen in any part of England, and nowhere else in a more prosperous condition. In these sheltered vales of the western coast we seem to have our nearest approximation to the climate and vegetation of the Mediterranean shores, and though the sky and sea are not so intensely blue, and we miss the Olive, and the Orange and the Lemon; the queen of flowers in those garments of Cloth of Gold, which even royalty cannot afford to wear in this land of smoke and shower; the *Bougainvilleas glabra* and *spectabilis*, so charming in their mauve and rosy-purple splendour upon the white walls of Monaco; we are, nevertheless, reminded by the *Paulownia*, *Wigandia*, *Arau-*

caria brasiliensis; by that blue bloom which reveals health and happiness on the branches of the *Pinaceæ*, and declares the *Thuja* to be an *Arbor-vitæ*, and not, as too often in our northern gardens, an *Arbor-mortis*; by the "Big Laurel," the *Magnolia*; by *Camellias*, *Azaleas*, *Pittosporas*, *Veronicas*; by flowers, such as *Geraniums*, *Cinerarias*, and *Salvias*, blooming through the winter; by these, and many other proofs that horticulture likes both protection (from cold winds) and free trade (in sunshine), we are reminded of the Riviera.

And I saw at Penjerick the best specimens which I have met within England of the *Eucalyptus*, but they had not, and they never will have in this country, any signs of the wonderful luxuriant growth which they develop in a genial clime. Even in Southern France, where in fifteen years they assume the proportions of timber trees (witness the specimen on the Quai de Massena, at Nice), they showed in many instances manifest signs of punishment after the winters of 1879-80, and

there is no more hope of their successful acclimatisation with us than that the Mammoth Tree of California, the *Wellingtonia gigantea*, will ever attain the dimensions of that specimen, of which some of us saw the outer bark (18 in. thick) set up in the Crystal Palace, Sydenham, and which was destroyed by the fire in 1866.

*
Fields of Asparagus surprised me as I drew near to Penzance,

and a long train of trucks laden with Broccoli was just leaving the station for London. Between 2000 and 3000 tons of this vegetable, and the same weight of early Potatoes, are annually sent from this terminus. The Asparagus is ready about a fortnight in advance of our general crop, but the earlier and larger produce from Versailles, Dijon, &c., materially reduces the amount of profit. I may be misjudged by prejudice or palate, but I like our English Asparagus, properly grown, not too thickly, well manured and salted, and boiled by some person with brains (there is a capital paper on Asparagus cookery in *Gardening Illustrated* for May 7, 1881) much more than the great white batons which are sent to us from France.

*
I went, of course, to the Land's End, well knowing that if I failed to do so, I should be told in tones of contemptuous pity on my return home, that I had thrown away an opportunity which might never recur of witnessing one of the most magnificent, &c., &c., and I saw "The Last Inn in England" announced on the sign of the small hotel at Sennen



Hatfield House (south or principal front).

as I went, and "The First Inn in England" on the other side as I returned, and I inspected the Logan Stone, of which it was said that, though a child could move it, no human power could dislodge, until one Goldsmith, a relation of the poet and a lieutenant in the Royal Navy, not believing in impossibilities, and remembering, it may be, the announcement made by Archimedes, that if he had a lever long enough, and a fulcrum strong enough, he could move the world, came ashore with a boat's crew, and, with a certain amount of engineering science and an unlimited amount of muscle and pluck, he dislodged the Logan. Whereupon such a commotion was raised in the district, as when the silversmiths at Ephesus were perturbed in spirit because their craft was in danger, and though this was an afterthought, their goddess was insulted, that the young sailor was severely reprimanded by the authorities, ordered to replace, and did replace, the stone. And then, it is gratifying to know, he made a virtuous resolve that nothing should induce him to contract a habit of upsetting Logan Stones, and he kept it to his dying day.

I saw the white gulls hovering around the great granite rocks of our Land's End and admiring their wives, who were detained at home on urgent private affairs, and for once in an excursive life was allowed to enjoy an interesting view without that chattering abomination called a guide. No one bored me with statements which I knew as well as he; no one came to explain the difference between a kittiwake and a scissor-bill and expected a shilling; no one pressed me to purchase blurred, grimy, thirty-second-rate photographs, conchological specimens, or lemonade. I turned my face from the kittiwakes towards home. I rushed through the famous nurseries, as I passed by Exeter, of Messrs. Veitch, and Lucombe, Pince, & Co., specially admiring at the former a plant of *Ceanothus rigidus*, climbing and flowering on the wall of one of the offices; *Rhododendron exoniense*, raised here, as its name declares, from R. Veitchi and R. ciliatum, with pinky buds, white flowers, and rich green leaves, since duly honoured by the two royal societies at Kensington and the Regent's Park with a first-class certificate; and out-of-doors the commencement of a rock garden under the tasteful care of an intelligent German; and pleased at the latter extensive establishment (which I saw under the auspices of brother Woodman) with the fine collection of Palms, Ferns, and plants, the rockwork (which wants more sun, soil, and tenantry), and above all with the great Camellia house, 200 ft. in length by 20 ft. in height, filled with noble trees of Chandleri, Beali, and many other beautiful varieties, still bearing abundantly, though they had been cutting from them for six months, that is, from October to April.

And then I saw a sight which I had long longed to see, the Rose garden of my friend, Mr. Baker. Rosarians know that no amateur has ever won so many victories in the wars of the Roses, and that, as of all Roses raised on English soil, *Devoniensis*, in her full beauty, is first and fairest, so of all amateur Rosarians, *Vir Devoniensis*, Baker, of Exeter, is the successful chief. Four things are requisite for the production of perfect Roses—love, knowledge, soil, and climate. He has them all, and has so used them that if all his prizes had been gold and silver medals, and it had been the custom to wear them, he could have appeared at our shows in a complete suit of armour, or he might have presented a set of silver chimes to the church which he frequents near his home. He has won something better than these—the esteem of the whole brotherhood; and there is not one of us who does not rejoice in his victories, and heartily wish that his dwelling-

place may long be, as it is called, a "Salutary Mount" to his Roses, and to those who are yet nearer and dearer to him.

There are 8000 of them. I do not mean of the nearer and dearer, but of the Roses themselves, like soldiers on review, in orderly ranks, cleanly, vigorous, shooting all at once, led by distinguished officers (I noticed Sir Garnet Wolseley, Duke of Connaught, Maréchal Valliant, General Jacqueminot, Captain Christy, &c.) and looking like victors in training for new victories. There, in soil, which had been a rich pasture field, neither too damp nor too dry, well dug and manured in due season, were fine healthy specimens of all the best Roses in cultivation, worked low on the Manetti stock, so that the scion might throw out roots of its own, with all weakly growth excised, and the thick strong shoots formed in the summer, and ripened in the autumn, pruned to three or four eyes. These were the Rose trees which had won so much admiration in all parts of our Rose-loving England, and from all persons, royalty inclusive. Ignorant and unhappy persons, not understanding Roses, might have thought, had they seen the owner and his companion gloating on what they would have turned mere bits of sticks with green spots on them, that we were a brace of imbeciles, but we foreknew and foresaw the loveliness which was to be. I did not see a weed in that garden, but I should very much like to introduce one some summer's evening towards the end of June, when the sun was "westerling to his close."

S. R. H.

THE FLOWER GARDEN.

FLOWERS ON THE GRASS.

WHEN your correspondent "Peregrine" some weeks ago recommended the planting of flowers on the Grass as a desirable style of decoration compared with what is known as "bedding out," in which he writes there was "no genius," he gave no example of the style he was recommending, and, with many others, I concluded that he was under the impression he had struck out a new idea in park decoration. This led me to reply to him that from my earliest years I had been familiar with what he was recommending as a new departure. It seems, however, judging from what he wrote on the 28th of last month, I was mistaken, for he writes, "Mr. Thomson is wrong in his inferences regarding flower gardening on Grass. My meaning was that this style of gardening was far from common; in fact, neglected." In reply to my statement, that examples of flowers cultivated on Grass abounded in Scotland, and that I had seen them fifty years ago, even in the Hebrides, he replies by writing, "I have known not a few important gardens there (in Scotland) where, a few years ago at least, gardening on the Grass was not thought of, far less attempted, though the opportunities were great." He further adds, "I am not prepared to controvert Mr. Thomson's statement that this style of gardening was common in the Hebrides fifty years ago, but if it was it seems certain that the Hebrides have left it there." This your readers have, in instances known to me, thought very like telling me I was making statements that were untrue. To put myself right, therefore, with those of your readers who may be unacquainted with "Peregrine" and myself, I shall feel obliged by your publishing the following letters out of a score of such which I could send. They will at least let your readers know where to look for examples of "flower gardening on Grass" in Scotland, and if the examples given do not suffice, I can supply any number more. I am specially desirous you should insert the one which relates to Torloisk in the Island of Mull. I have letters from other islands to the same effect, but perhaps that sent may enable "Peregrine" to withdraw his "if," and, in conclusion, let me ask him to name "the important gardens there" (in Scotland) that he ever visited.

Tweed Vineyard.

WM. THOMSON.

Meikleour, Perth.

In reply to the enquiry respecting flowers on the Grass, let me say that there is any quantity of Daffodils, Snowdrops, and some Crocuses, also a quantity of the single and double Narcissus on the Grass, lawns, and river-sides here, and have been to my own knowledge for more than twenty years. The late Mr. Wm. Gorrie, Edinburgh, to whom I sent hampers of them, knew of their being planted here extensively more than fifty years ago, and I know

the late Sir George Stewart McKenzie, of Coul, in Ross-shire, had a large number planted on the lawns there about that time, and other places I know of in the north have flowers on the Grass.

D. MATHESON.

Penrhyn Castle, N. Wales.

I remember as well as I do yesterday the Daffodils and other flowers on the Grass at Torloisk, in the Island of Mull, and especially the luxuriance of the Lily of the Valley under the grand Lime tree there, which was on the margin of the lawn. I saw them first in 1826, and for many years afterwards. We also had flowers on the Grass at Drimfine, in the same island.

GEORGE WILSON.

4, Marchmont Street, Edinburgh.

At Yester we had for upwards of thirty years been planting Daffodils, Primroses, Cowslips, Tulips, Snowdrops, Crocuses, &c., on the Grass. One year I planted a bushel of Crocuses, purchased from Messrs. Lawson & Son at the end of the bulb season; and the late Mr. Rentoul, my neighbour at Whittingham, was in the habit of doing the same, perhaps, fifty years ago. The late Mr. Lees, of Tynningham, also planted them on Grass. My attention was first called to the matter by seeing the late Mr. Murray, of Salton Hall, practising this kind of gardening, which was so interesting that I never forgot it. Instead of being anything new, I have no doubt but that it has been practised, less or more, for upwards of a hundred ears.

ALEX. SHEARER.

Marchmont.

Planting hardy spring flowers on Grass is no new idea. There are quantities of Snowdrops and Crocuses on Grass at Floors Castle. There are there some very effective zigzag lines on the slopes of the terraces done with Snowdrops. The common Daffodil is growing in Grass in an old garden about a mile from here. At Fingask Castle, Perthshire, and several other places in that locality, Daffodils, Snowdrops, Crocuses, and Hyacinths were abundant in Grass more than 30 years ago.

PETER LONEY.

Torloisk, Island of Mull.

Daffodils and other flowers are still growing amongst the Grass here, as they did when you knew the place fifty years ago, and instead of diminishing this system of gardening, I have increased it since the date referred to. The Lily of the Valley under the large Lime has been removed, but the Daffodils, Narcissus (double and single white), Snowdrops, Polyanthus, and common Cowslips, &c., are all growing in the Grass here in great luxuriance, and this season they have flowered in great profusion.

CHARLES GRIERSON.

Bothwell Castle.

The flowers that are planted on the Grass and lawns here, and more especially in the woods, in view of the many walks that wind through them, have occupied the same positions for at least 50 years, and many of them were planted before that, and their numbers have been greatly added to since. I may indeed venture to say that we have acres of Daffodils in the woods, and that we now cut many baskets of flowers from them yearly for flower missions, always retaining plenty to keep up a show, for they grow freely and flower profusely. Of dwarf growing things in the woods, nothing succeeds better than the Lily of the Valley, which masters the Grass, and extends itself rapidly. I only plant on lawns Snowdrops and dwarf early flowering plants that mature their foliage before there is much need for mowing. I was employed in the gardens at Dalkeith Park nearly eight years before I came here, under the late Mr. McDonald, and, with his knowledge and concurrence, I planted along the side of the South Esk a good many herbaceous plants that we thought might keep their ground amongst pretty rank herbage and they did so.

ANDREW TURNBULL.

Dunrobin Castle, Sutherland.

Spring flowers have flourished here by the acre, in some cases, for nearly a century at least, the Grass under the old trees being literally studded with Snowdrops by the million in the groves between the castle and the sea, and between the kitchen and flower gardens, the whole forming probably as fine a bit of spring gardening as can be seen anywhere. The Daffodil, Cowslip, Autumn Crocus, Ornithogalum umbellatum, and many varieties of Polyanthus are scattered about in the same places, though apparently of later introduction and in less profusion. They are all, however, encouraged, and in some cases added to annually, the whole being allowed to ripen their foliage after flowering before being brought under the sweep of the scythe, or the crushing pressure of the lawn mower. These spring flowers were doubtless planted in the old times, when the old Earls and Countesses of Sutherland spent most of their time here, and before it became the fashion to live in London during the spring months. Whoever planted, or caused to be planted, these grand masses of spring flowers in such glorious profusion must have been gardeners of the right stamp, who must have drawn their inspiration from Nature, and

studied the effect of her lavish hand in the waving banks of wild Hyacinths in the woods, the masses of Foxgloves on the sea cliffs and bluffs, or the expanse of purple Heather on the hillsides in autumn.

D. MELVILLE.

[Both our correspondents are right in a sense, and the above contributions are welcome and suggestive. No plants can be more beautiful or valuable than the plants mentioned—none afford better effects. At the same time the amount of attention that has been given to so charming a subject may be judged by the fact that scarcely a plant not a native is mentioned in the above notes. For every native plant that is named many exotics are equally suitable, because there are many countries with a larger and more varied flora than our own, and one quite as hardy or hardier. Some of our most charming flowers occur everywhere, and cannot indeed well be left out of the Grass, as in the case of the Primrose and Cowslip. The Snowdrop is, apart from gardens, frequently naturalised in England and Scotland, and supposed to be truly native in the western counties, and it would be strange if it did not occur in gardens too. The Lily of the Valley is a true native plant, said in Hooker to be wild from Moray to Kent and Somerset; it ought to be more wonderful to find it out of gardens than in them. Yet lovely as this plant is, we never saw a deliberate attempt to make it in a free state one of the permanent ornaments so to say of a country seat till Mr. George Berry planted out a good deal of it at Long-leat some eight years ago. The vernal Crocus is so freely naturalised in meadows as to be by many considered a native. The Narcissus is common as a native plant. We have seen meadows of it fairer than any garden or nursery collection of it. *N. biflorus* is also found in charming profusion in some places. The Poet's and other kinds are sometimes found in a naturalised state, especially on the sites of old gardens; and this year, in a wood in Sussex, we saw plenty of "Butter and Eggs" and its single form. What we urge is that, if so much is done by Nature herself, how much more might be done if Art stepped in and deliberate attention were given to this subject and the many charming things that are suitable which come from the vast cold regions of the northern world—Europe, Asia, and America. Our own wild flowers are so beautiful and so common about us in many cases that their presence is not so important to secure as that of plants equally hardy, equally beautiful, but wholly distinct. For example, wherever the wood Anemone grows wild there can be no reason for putting it in the Grass; whereas the addition of the Apennine Anemone would add a new charm to the place. The subject is really a most important one; in this way alone the great question of spring gardening might be for ever settled, and in the most charming way. Unhappily, the rule is bareness and shaven or naked surfaces everywhere. Not only are there few but native flowers in the Grass, but the very borders avowedly made for flowers are bare, and not in winter or spring only, but even bare at midsummer, save, perhaps, a few dots of plants.—ED.]

ASPHODELUS RAMOSUS FOR WOODLAND GARDENS.

THIS is just the sort of strong hardy plant to put out into ornamental woods or wild gardens, for it can take care of itself no matter how strong and rough the herbage and weeds around it may be; its whitish, tall, and uncommon looking flower-spikes stand out conspicuously above other plants. This rough, though stately-looking plant is more than welcome just now, as strong herbaceous perennials that can exist in woodland gardens and be in flower at the present time are scarce. In a week or two there will be no end of Foxgloves and other plants in bloom. *Asphodelus ramosus* comes into bloom just when there seems a dearth amongst tall wild garden flowers.

While on the subject of wild gardening, permit me to suggest that the present is a favourable time to select, mark, turn, and prepare ground for plants intended to be planted out into woods and wild gardens next season; the danger is, if the ground be not prepared now and put off until autumn, that bulbous and other plants that die down in summer are most likely to be dug up, distributed, or injured by digging indiscriminately amongst them; whereas, if the work be attended to now, every living plant in the ground may be seen, and, moreover, the soil will be in a better condition to receive plants in autumn if turned up, enriched, and exposed to the weather for the next few months than if the work is done at any other time. My little experience in wild gardening has taught me that if success is to be a certainty, any plants put out into woodland gardens or other rough places must be helped with a good start by turning and enriching the ground for their reception. Where ground game abounds wire netting should be placed round every plant or group of plants for a season or two until the bare ground becomes covered over with the plants or other herbage; even a single rabbit only can

do an immense amount of harm to newly-introduced plants in one night. The old adage, "To be forewarned is to be forearmed," I found to be a truism in wild gardening experience.

Longleat.

GEORGE BERRY.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Yuccas on Grass.—Few of our hardy, fine-foliaged plants are so well adapted for groups or masses on the Grass as *Yuccas*. We have a quantity of old plants of *Y. gloriosa* and *Y. recurva* that annually send up numbers of flower-spikes, and are then very striking objects, but at all times they are very ornamental. They originally stood in an old mixed border, but the other plants have been removed. The small varieties, like *Y. filamentosa*, have been grouped round the statelier habited sorts, and the soil under them has been sown down with lawn Grass seed with excellent results, for the *Yuccas* show themselves off to far better advantage than they did before, and under the friendly shelter of the *Yuccas*, early flowering bulbs and other plants, which make their growth before the Grass needs much cutting, may be planted, for after the foliage of bulbs turns yellow it may be removed without injury to the bulbs. Snowdrops, Crocuses, Aconites, and many other early plants will have completed their growth by the middle of May, after which the turf may be mown like other portions of the gardens.—J. G. L.

Phytolacca purpurea.—We recently received this plant from Mrs. Davidson, Ashmore, who said she got it from Mr. Harpur Crewe, to whom we applied for information respecting it, and the following is his answer: I know nothing of *Phytolacca purpurea*, except that I purchased it under that name in the form of seed some six or seven years ago of Mr. Bull. I have propagated it ever since by cuttings (it appears to be only a biennial), and have distributed it largely. I never saw it in any garden or collection except my own. I have always intended to send it to Kew to have its nomenclature settled, but somehow or other have never done so. It grows into a great bush, and is covered with spikes of rosy purple flowers in August and September, and is unexceedingly handsome plant in a mixed border.—H. HARPUR CREWE, *The Rectory, Drayton-Beauchamp, Tring*.

Hardiness of *Centaurea candidissima*.—Permit me to inform "J. W. T." Carlow (p. 556), that several plants of this, which for several years have received no care or protection whatever, have never perished. I am inclined to class it with the perfectly hardy perennials, but with me it grows so rapidly and luxuriantly that I prefer putting it in some out-of-the-way corner. This is the reason I found it objectionable for edging and other purposes of combination.—W. J. M., *Clonmel*.

Myosotis Weirleigh Surprise.—Allow me to say, in reply to Mr. D. T. Fish (p. 597), that the white and blue seedlings from Weirleigh Surprise are all of the *sylvatica* strain. The striped variety has little value for gardening display, but it is a most charming Forget-me-not for bouquets, and never fails to interest people.—BROCKHURST, *Didsbury*.

Myosotis dissitiflora alba.—Perhaps Mr. Groom will be so good as to obtain for me a few slips or seeds of this variety. In exchange I shall be pleased to send him seeds or cuttings of the variety *M. d. splendens*. Of course Mr. Groom is too familiar with my favourite *dissitiflora* to be deceived, though I have had so many white varieties of this lovely species sent to me that I have become sceptical, as not one of them has proved anything better than some sort of *M. sylvatica*. But all these disappointments make me the more anxious to possess the true white *dissitiflora*, which, I agree with Mr. Groom, will probably prove the best white flower for spring bedding.—D. T. FISH.

Daffodils.—As regards the comparative size of the flowers of *Narcissus Empress* and *N. Horsfieldi*, I have grown both varieties for several years, having obtained them undoubtedly true. *Empress* grows taller and looser, but in mass and substance the flowers of *Horsfieldi* always surpass those of *Empress* when grown under the same conditions. I have two or three times mentioned this to Mr. Peter Barr, who says that it is not so with him. I observed the same in Mr. Smith's nurseries at Worcester this year, where a bed of each was flowering side by side, correctly named, and the flowers of *Horsfieldi* were the larger. A word about the Tenby Daffodil, a great favourite of mine, the first except *nanus* to flower, and continuing the longest in flower, and the only one which always ripens seeds with me. It is curious, considering its merits, that it should be so scarce, but I have never yet been able to meet with it amongst imported bulbs. Who names it *obvallaris*? We are told in Sowerby that it is the *lobularis* of Haworth, and it is also called there *concolor* and *Bromfieldi*. It has little, except colour, in common

with the most splendid of yellow Daffodils—the *obvallaris maximus* of Barr, a flower of entirely different shape; but it is dangerous to meddle with the names of Daffodils. I may add that of a large number of what are called the "trumpet," or "Ajax" varieties of Daffodil, the finest flowers I had this year were those of a bulb bought two years ago from Mr. Barr as bicolor sulphureus. The colour and form were beautiful, and the flower larger than *Emperor*. On looking over Mr. Barr's paintings of Daffodils I recognised it, there named bicolor *primulinus*, and Mr. Peter Barr told me that some of these were sent out two years ago under the other name. It must be owned that the rapid multiplication of varieties is rendering the naming of the Daffodils very difficult.—C. WOLLEY DOD, *Edge Hall, Malpas, Cheshire*.

THE GARDEN FLORA:

PLATE CCLXL.—CHEVALLIERA VEITCHI.

THE beautiful Bromeliad represented in the annexed plate now called, I believe, by Mr. Baker, of Kew, *Æchmea Veitchi*, comes from New Grenada. All the species of this genus have a harsh cone-shaped inflorescence, the bracts composing which are the most attractive part, and not the actual flowers. The plant in question has a graceful habit; the leaves grow about 18 in. long and recurve. The colour is pale green, with darker green blotches. It grows freely in a stove or tropical Orchid house, and flowers best if well exposed to light; its natural time of flowering is July and August, but, like all this class of plants, it can be brought into blossom at any season if attention be given to taking off suckers and starting them in bottom heat, a remark which applies to all Bromeliads. They should be separated from the parent, and when well rooted watered freely, and when grown as single plants they are more useful and ornamental than in a mass. Some are afraid when they see these plants with water in their centres that it will rot them, but of that there is no fear if the house is warm enough, while at the same time they will stand as much drought as an *Aloe*. One objection to these plants for decorative purposes is their prickly leaves; but for vases and brackets they are excellent, especially some of the softer or less spiny sorts; others say they will not answer for button-hole bouquets, and it is well they will not, for we do not want all flowers cut for that purpose, though now that Sunflowers are in fashion for ladies' head-gear, I do not know what will escape.

Æchmea fasciata, a South Brazilian species, is a useful and pretty plant, of more robust habit than *Æ. Veitchi*. It has broad recurved leaves banded with white; the flowers are rosy-pink, or rather the bracts are. It is useful on account of the length of time during which the bracts last and keep their colour. In some collections this plant is called *Billbergia Leopoldi*, *B. fasciata*, and *B. rhodocyanea*. *Æchmea Marie-reginæ*, a native of Costa Rica, a grand plant, has deep rosy bracts of great size. It is a robust grower, requires liberal treatment, and full exposure to sunshine, or it is apt to fail in flowering.

Culture and Position.—In growing all this class of plants, especially the small varieties, it should be remembered that naturally they are Epiphytes, and that, therefore, they require plenty of drainage and rough soil, mostly peat, and not over large pots.

J. CROUCHER.

[We are indebted to the General Horticultural Company for the opportunity of figuring this plant, which flowered last year in the Anerley Nursery.]

Rhynchospermum jasminoides.—Few inmates of our greenhouses have maintained their popularity longer than this very useful plant, for whether as a roof-climber, as a single specimen, or for yielding cut flowers, it is equally invaluable, and no place, however limited the extent of glass may be, ought to be without it, for its delicately scented Jasmine-like flowers are exquisite for button-hole or other bouquets, and, being small and of the purest white, are appropriate in every kind of arrangement. Most people are familiar with the *Rhynchospermum* as a specimen plant, but it is as a pillar or roof-climber that it shows itself off to the greatest advantage. We have a pair of plants at present on the lofty pillars of the conservatory perfect masses of fragrant blossoms that last for a long time in a cool, airy structure; and when not in bloom the dark shining leaves are in themselves effective. It is sometimes attacked by green fly when coming into flower, but a good deluging with the



garden engine soon dislodges them. It is by no means fastidious as to soil. We use turf chopped up roughly with peat and sand, and a large plant may be grown in a medium-sized pot. It is best kept in quite a cool house in winter, but in order to lengthen the season of flowering, a few plants may be pushed forward in gentle heat soon after Christmas, so as to have a supply of its blossoms during spring and summer. After the plants that have flowered have ceased blooming we set them out-of-doors, as exposure to rains and dews helps to keep them clean and healthy.—J. GROOM.

NEW JAPANESE PRIMULA.

THE subjoined woodcut represents a new species of Primula lately



A New Primula (natural size).

introduced to cultivation by Messrs. Veitch & Sons through Mr. Maries, their collector, who discovered it at Ichang. It is one of the most distinct as regards the habit of growth, and particularly the foliage, of any Primula grown, and on this account it is well worth attention, as it may eventually become the parent of some distinct hybrids. As may be seen by the woodcut, the leaves are large and broad and distinctly lobed at the base, and they form a distinct tuft which lies almost flat on the soil. The flowers, though somewhat small, are of a pleasing mauve tint, and are moreover produced plentifully even on small plants, which is a desirable character. It is presumably quite hardy, but on this point Messrs. Veitch are putting it to the test in their Coombe

Wood Nursery. If it should prove as hardy as is expected, it will be a valuable addition to the genus. W. G.

THE ROSE GARDEN.

SHOW ROSES.

I THINK it would have been more gracious, and I am sure that it would have been more effectual, if you had suggested to the National Rose Society, of which I have the honour to be president, that they should supplement their catalogue of Roses most suitable for exhibition with a list of Roses for the garden only, instead of menacing us with a rival institution, a threat which would be vexatious were it not absurd. Permit me to assure you that we do not restrict our appreciation to those Roses which for form, colour, and endurance we esteem the most, but can discern the beauty of the hedgerow or any other variety as quickly and as heartily as any florist upon earth. He who loves horses, loves the pony also, but, as a rule, prefers the horse. I have for many days been delighted with the alpine Rose in my rock garden and with a bed of Scotch Roses elsewhere, but, charming as they are, they are no more to be compared as claimants of admiration with La France, Charles Lefebvre, and Maréchal Niel than a hawk is to be compared with an eagle, or a tortoiseshell cat with a Bengal tiger. S. REYNOLDS HOLE.

[There is more in the subject than comparisons of Briers and Roses, ponies and horses, will settle. The interest of Rose gardens is, we have much reason to know, injured by the exclusive attention paid to show Roses. Before what our correspondent loves we have to consider the actual state of Rose gardens, and, though apart from its flowers the Rose is so graceful in habit and foliage, it is a fact that a man does often show Roses very well from a collection of gawky standards in a nursery or kitchen garden. Apart from single Roses, and such good shrubby Roses as R. Brunoni, there are a number of Roses thrown into undeserved neglect owing to the never-ending selection for showing purposes. Fortune's Yellow excluded from the list of show Roses sent out by the National Rose Society and Fortune's Yellow garlanding one of the pillars in the kitchen garden at Blenheim—a lovely sight—explains the case. We see many gardens in many districts of the country, but rarely even a beginning of a Rose garden worthy of the name. Our Rose shows have their place and do their good work, but it would not be just to say that the interests they represent are more important than those of the much greater number of persons who grow Roses for their gardens. We are and we hope always to be independent of all societies, and frequently have to point out where the efforts of such bodies are not used in the best direction for the public interests. Is not the National Rose Society composed almost wholly of exhibitors of Roses or past exhibitors? If so, we can scarcely expect them to take so much interest in the Rose in the garden, and in making our homes and gardens more beautiful by her aid—things in no way difficult. We love a good Rose as much as any florist in England, but in the course of many wanderings in quest of the beautiful in gardens the fact that the Rose, as a garden plant, its growth in a graceful as well as vigorous manner, and its good effects in the garden landscape are things unseen, is constantly forced upon us. On the other hand, nearly every garden is spoiled (except from a comic point of view) by Roses on broomsticks. We respectfully suggest that this subject is one not unworthy of the attention of the National Rose Society, and that, aided by winters of tremendous severity, it may be enabled to help us towards something better in our gardens. The pattern rosery of the Rose and other books is much uglier than the exhibitor's honest plot of sticks, because more pretentious. In short, the loveliest plant that graces this world of flowers is from a variety of causes made the ugliest in habit and in its effects. It is no crime to wish it were otherwise, and we should willingly help improvement in this direction.—ED.]

La Boule d'Or.—This Rose sometimes opens well on a wall. We had a fine plant on a south-east wall which gave us some fine

flowers hardly second to the *Maréchal*. But, alas! the frosts of the last two winters have destroyed this as well as so many other fine Roses, and our stock of *La Boule d'Or* is reduced to a single plant with one small shoot. No doubt covering the blooms of this and a few other imperfectly unfolding Roses, as practised by Mr. Cant and referred to by Mr. Baker, helps them out at times, but the worst of such malformed Roses as *La Boule d'Or*, *Souvenir de la Malmaison*, and *Homer* is that the flower is imperfectly formed from the first, and when that is the case no amount of fostering culture will force the hard green centres into proper form or colour. In regard to these malformed buds it is one pleasing feature of this Rose season that *Homer* and *Souvenir de la Malmaison* are coming of good form. As a rule here the first blooms of these varieties have a very large percentage of misshapen flowers, while the autumn blooms are perfect. Our first blooms of both varieties here are nearly all perfect this season.—D. T. FISH.

ROSE SUCKERS.

THAT suckers are a growing force no one will doubt. But force in the wrong place, like many other good things, such, for example, as food, clothing, buildings, is worthless or worse. Thus it has happened with suckers; they have always been chopped off and destroyed, as a something in the way or out of place. The Rosarian recognises one line of usefulness or beauty only, and that must be Roseward. Suckers are to him rivals to be thwarted and suppressed. Yet, looking at the energy and persistence of sucker growths and their enormous numbers, it does seem a pity that so much vital force should be annually consigned to the rubbish heap or the fire. Could suckers speak they would tell us not a few Rose secrets well worth knowing. Their presence denotes a block, break down, or weakness somewhere in or about the plant. The top, stem, or root has failed, or is about to do so, and the sucker proclaims the fact to all who have eyes to see. Suckers are often protests against the ill-matched pair, the Rose and the Brier, the bud and the stock. How comparatively seldom these two live amicably and grow equally together! The inequalities of growth force out suckers from the roots and stems, proclaiming to us that Nature respectfully declines to be led with our leading strings, and would rather set up anew on her own account. That is, indeed, what she is constantly doing when Roses and other plants are on their own roots. Suckers then become Nature's chief rejuvenators. The old stems or branches are weakly or worn out, and forthwith Nature sends forth a new plant in the form of a sucker, thick and strong as a prize Asparagus stem. This sucker quickly overtops the weakly growth above it, and becomes a new, more vigorous, and beautiful plant than the old. Of course, the process of renovation is hastened if the cultivator clears the way for the sucker by pruning off the whole or all the weaker portions of the old plant. But this plan does not answer with budded or grafted plants, because in such cases the suckers are Briers or seedlings, or at best Roses far inferior to the scions or tops. Still, surely suckers might often be turned to more useful account than they are. For example, how many Briers have been frost-bitten this winter. The stems are hard and dry as walking-sticks in too many cases. There is no appearance of a break anywhere near the orthodox height for budding. Still not a few of the Briers have thrown out shoots near to the ground, while in the case of many more the roots have yielded quite a crop of strong suckers. There are several obvious methods of utilising these. The obvious mode is to bud the Brier wherever it has broken into shoots. The height of the future Rose is a small matter; the fact of obtaining a stock at all was seldom of more importance than this year. But even those who insist on a uniform height of stock need not despair. By cutting the Brier down to the break and training up one shoot only the chances are that the latter will be high and strong enough to bud at the desired height before the end of the year. By carefully thinning and training root suckers they may also be grown of sufficient strength for budding late in the autumn, and if not, such suckers form far better stocks for the next winter than the majority of hard and dry Briers that one is often obliged to accept as being the best that could be had. These stocks would be objected to by some as being likely to prove fruitful of suckers; but that might prove convenient, as we have seen, and it would be easy to bare the suckers to their roots and remove all eyes likely to produce suckers. Stem suckers again healed off, as recommended for Rose cuttings, root freely, and would form capital Briers for grafting the following spring, while root suckers are plants

already, and if moved when a few inches high, and lined out in drills 18 in. or 2 ft. apart, will form capital stuff for working dwarfs on; or cut level with the ground in the autumn these suckers might be grown into model stocks for standards the next season.

By some of these methods the whole of our suckers might be utilised in renewing the life, increasing the vigour, or increasing the numbers of our Roses. It may be objected that the suckers would still rob the Rose trees, while they themselves were growing into usefulness; but there is probably little force in this objection, as the quickening and stimulating action of suckers on the roots would more than compensate the plants for any loss they sustained by their production. By the time the suckers began to drain the Roses much they would either be removed or become principals themselves by some of the methods here pointed out. The object is not to encourage the growth of suckers, but rather to prevent the present enormous waste of sucker force, and then, too, each sucker may be converted into a Rose, with little or no injury to the plant producing the suckers. D. T. FISH.

ORCHIDS.

ARE ORCHIDS EASY TO GROW?

SINCE I wrote to THE GARDEN some time ago, my collection of Orchids has made some progress in number of species, and there is also some improvement in their growth. I am, nevertheless, very anxious about their future welfare. Some months ago I read in a gardening paper that *Cœlogyne cristata* ought to be showing its flower-spikes. I at once examined our plants, and sure enough there were at least ten or twelve spike-like growths protruding from the base of the pseudo-bulbs. I was not anxious to see its flowers, as I wanted to grow the plants into large specimens, so I cut the growths all off. I was surprised that the plants did not offer to make any leaf-growth, and so asked a neighbour's Orchid grower to call and see them, and now it is very disappointing to be told that my plants did not "show for flower" (owing, as he assures me, to their having been kept too wet just as the flower-spikes appeared), but that the growths which I cut off were those which should have developed into leaves and pseudo-bulbs for next year's blooming! Our *Cattleyas* having some time ago become very loose in their pots, I was recommended to repot them, to use smaller pots, and to make the plants quite firm therein. This we did, but they have made no growth, and my gardener says it is because the house is not hot enough. He tells me that as *Cattleyas* make very thick roots they want lots of root-room and plenty of water. The Orchid grower who came to see my plants, however, says that they are potted too deeply, and that, as the house has been too close and hot, the young growths have all rotted off in the peat and Sphagnum. He says, moreover, that *Cattleyas* do not like much water; in fact, he tells me that no *Cattleyas* grow and bloom well unless they be kept rather dry. My object in writing is to know which statement is correct. I am also anxious to avoid cutting off the growth of my plants for the future, and should be obliged if anyone will kindly inform me how to distinguish the flower-spikes of Orchids, such as *Cœlogyne*, *Odontoglossum*, *Cattleya*, and *Dendrobium*, &c., from their usual kind of vegetative growth. I am very anxious to know how to do this in the case of *Dendrobiums*, because I once read that any growths which appeared on the stems of *Dendrobiums* were of no use, but that growths to be of any service for blooming next season must always spring from the base of the last year's growth. I am anxious to know if this is correct, because when I read the statement, I at once went to see if our *Dendrobiums* were making growths from the base of the bulbs, and finding that some had done so, but that others were protruding little knobby growths all up the stem on alternate sides, I rubbed off the latter, thinking to make the plants break from the base, and now the Orchid grower says that what I have rubbed off were incipient flower-spikes, and not bulb growths at all. Now all this is very perplexing and has caused me much doubt and annoyance, but if someone will clearly state the distinction between flower growth and bulb growth, one may avoid such mistakes.

When is really the best time to pot Orchids? Our plants of *Lælia purpurata* have just gone out of flower, and my gardener says he has read that this is the proper time to pot them. The Orchid grower tells me, however, that they only want top-dressing, and that it is quite a mistake to repot Orchids too often, as he says their roots get broken, and often die off entirely when fresh compost is too closely embedded around them. On the other hand, my own man says that this is all wrong, as the peat in which *Cattleyas* are potted soon becomes sour, and that then unless it be removed and the

plants transferred to clean pots and fresh compost, the roots decay and the plants get out of health.

I cannot find any mention in books as to the quantity of water which is necessary for the different kinds of Orchids. Is this a secret? For example, suppose a plant of *Dendrobium nobile* is well rooted in an 8-in. pot, should it be watered every day? and how much water should be given to it at each watering? Would a quart be enough, or too much? I wish some one who understands all about the watering of Orchids would tell us all about this matter. For example, if *Dendrobium nobile* requires a quart of water daily when in an 8-in. pot, how much will *Cymbidium eburneum*, *Cypripedium caudatum*, or *Cattleya Mossiae* require under similar circumstances? The instructions given in books are so general, that I cannot exactly make out what they really mean. For example, I have just read that *Odontoglossum membranaceum* requires "abundance" of water "when growing;" but how am I to know leaf growth from flower-spikes? and what does the word "abundance" really mean applied in this way? Some might call a pint plenty when poured over the compost in which the plant grows, but others might treat the plant as a sub-aquatic by putting a saucer or pan of water under the pot. Which is the right way? I was led to begin Orchid culture some years ago on the faith of a statement that they were really very easy to grow. I did not care much for plants or gardening, but seeing these lovely plants at floral exhibitions made me wish to have some of my own. My own experience is that they are most troublesome to grow well, and very expensive for fuel and labour, to say nothing of first cost of plants and the losses consequent on there being no definite system or principles which a cultivator may safely follow. My gardener confesses to having lost many valuable Orchids through deaths, but he tells me that a certain proportion always die, and that this is so wherever Orchids are grown and with the best of means and appliances. When I ask him such a simple question as whether a certain plant requires a pint or quart of water daily, his only answer is, "Well, you see, it all depends; it wants more or less, according to circumstances;" and so on, *ad infinitum*, all generalities, and no definite system or principle can I learn from him or his fellows. Is it possible that gardeners have "trade secrets," and that they will not tell their employers? or is it possible that my gardener is really in as great a fog as I am myself about Orchid culture?

I am firmly of opinion that those who say Orchids are easy to grow are men who are adepts in their culture. "Everything is easy to those who know how," as the old legend hath it, and so those who say Orchid culture is simple lose sight of their own skill and of the cultural advantages which they may possess. To me, as an amateur, the thing presents itself in quite a different light, and yet I am undaunted, but quite willing to labour, to wait, and to learn by experience and by the written knowledge of those who know how it is done.

J. C.

Whalley Range.

ORCHID NOTES FROM DUBLIN.

ONE of the freshest and brightest of half-hardy Orchids is *Orchis foliosa*, from Madeira. It has bright green foliage and an erect spire of vivid purple flowers, and is really very effective as a pot plant. Of native Orchids, *Listera cordata*, collected on the Dublin Mountains a year ago, is now in flower. It is a wee thing, almost microscopic in fact, scarcely 1 in. in height, stem, leaves, flower-spike and all. A still more rare native Orchid, *Spiranthes Romanzoviana*, is fresh and healthy, and pushing up its trigonal spike of sweet-scented white blossoms. Found in a rushy meadow on the shores of Bantry Bay, nigh to Bearhaven, the plant is unknown elsewhere in Europe, but curiously enough crops up again in the Rocky Mountain region.

A plant which I obtained from Mr. Ware under the name of *Cephalanthera ensifolia* has just bloomed, and is very lovely. It is a hardy Orchid with short pale green leaves and pure white flowers borne on a little central spike only 3 in. or 4 in. in height. It may best be described to Orchid growers as a miniature *Cymbidium eburneum*. Our plant is growing in a small pot of leaf-mould and peat, surfaced with Sphagnum Moss, and was wintered in a cold frame in which strong seedling Eucalyptuses were killed by the dozen last winter.

I find that hardy Orchids plunged outside in pots behind a shady fence are as fond of a surfacing of living Sphagnum as their pseudo-bulbous relatives from the Andes and Cordilleras of New Granada and Peru. Orchids generally seem very sensitive, and that bare earth is not what they exactly like is most evident. The same is true of many other thick-rooted moisture-loving plants which actually prefer the society of those brigands among plants—the most ravenous weeds—to being "alone in their glory" surrounded by a desert of bare earth.

Amongst tropical Orchids now in blossom, *Vanda teres* var. *Andersoni* bears a spike of six flowers. *Odontoglossums* are represented by *O. Rossi*, *O. citrosimum roseum*, *O. vexillarium*, and the pallid *O. Schleiperianum* is fast throwing up its spikes. *Vandas* of the tricolor and *suavis* sections are also showing well. The Javanese *Phalænopsis grandiflora* bears two large branched spikes, and will remain in beauty for months; so also *P. Luddemannii*, *ana*, and *Dominy's* long-tailed Lady's Slipper, *C. Dominicanum*, *Cypripedium Pearcei*, one of its parents, and *Masdevallia Harryana*. *Bletia hyacinthina* and others are flowering in the cool house. *Lælia purpurata alba*, *Cattleya Mossiae* in variety, two fine forms of *C. Warneri*, *Dendrobium Devonianum*, *Pholidota imbricata*, *Stenia fimbriata*, and *Cypripedium barbatum* are also in flower.

F. W. B.

Calanthe Textori is a fine novelty, reminding one of *C. veratrifolia* in the broad plaited foliage and style of flowering, but the blossoms, instead of being pure white, are suffused with a delicate shade of pink, and on the lip there is a conspicuous warty crest of a reddish-orange tint, which gives the flowers a striking appearance. *Epidendrum brachiatum* is a remarkable species, not showy, but highly interesting—a counterpart, in miniature, of the gigantic *Grammatophyllum Ellisi* as regards the flowers, which are thick and fleshy, yellow and spotted with chocolate.

An American Orchid Collector.—On several occasions during the past year or two our readers have been indebted to Mr. Ernest Morris for curious and interesting information touching the natural history of the Amazonian forest regions communicated in his letters to the *World*. Mr. Morris lately returned to this city, bringing a large number of rare and valuable Orchids, which he has collected for Mr. Corning, of Albany, N.Y., whose collection is valued at more than \$100,000, and is considered the finest in the United States. Mr. Morris expects to return to his Orchid collecting in South America, probably in Columbia and Ecuador. With the genuine explorer's feeling he says: "The valley of the Amazon is too civilised for me, and I want to get off the beaten track. When I come across an empty beer bottle hung up as an ornament in an Indian hut it makes me feel as though I was too near home."—*Scientific American*.

MARKET GARDEN NOTES.

Lilies.—Lovers of these fine, hardy flowers will be pleased to know that they are yearly gaining favour as market plants. Until very lately, the varieties of *L. speciosum* and *auratum* were the only kinds grown in quantity for Covent Garden, but now *L. longiflorum* bids fair to rival them in popularity. One of our largest market growers pots up yearly some three thousand of this Lily, or, I should rather say, has that number of pots of it, for I think that he puts two bulbs in a pot. It is, however, the variety *L. eximium* that is preferred, comparatively few of the type being grown. The old *L. candidum* is now also being rather extensively grown by some; but in the case of this Lily, it is found that the bulbs require to be established some twelve months in pots before flowering, otherwise they do not throw up sufficiently strong to render them of much decorative value.

Mignonette in Spring.—Mignonette is such a universal favourite, that there is a constant demand for it throughout the spring months. Most flowering plants grown for market have their particular season, being in much request just at that time, the demand for them in many instances declining almost suddenly. This is not, however, the case with Mignonette, the fragrance of which insures for it a continued unvarying popularity, so that good samples are at any time during the spring months almost sure to realise good prices. In order, however, to make Mignonette pay, it must be thoroughly well grown; it must not only be well flowered, but the plants must be clothed to the rim of the pot with fresh green foliage. Few plants more quickly show the effect of injudicious treatment than Mignonette; once it gets into a starved, stunted state, if the lower leaves commence to exhibit a yellow tinge, there is but little hope of obtaining well-finished-off specimens. The plants must be grown along quickly and freely, never allowed to stop for want of ground or moisture, and the atmospheric conditions must be right throughout the growing period. As most private growers are aware, it is not by any means one of the easiest tasks to hit off to a nicety the requirements of this plant, unless, which rarely happens, some special convenience can be accorded it. It is indeed almost impossible to grow Mignonette to perfection amongst a miscellaneous collection, or on dry stages in airy structures in the ordinary way of plant culture. Market growers do not attempt to grow it thus, but make such provision that the soil can be maintained

in an almost unvarying state of moisture from the time the seed is sown until the plants are fully grown, without having recourse to too frequent or heavy watering; for it is found that the Mignonette thrives in every way better thus accommodated than when a circulation of air playing round the pots dries out the soil from time to time. For this reason pits are preferred to houses, as therein a bed of leaves or some such fermenting material can be made, and the pots, being plunged in it, are insured against draught, and the conditions of heat, air, and moisture are thus more nicely adjusted than could well be the case by any other method of culture. It will at once be perceived that plunging the pots in fermenting material ensures healthy root action and rapid growth, the tan, leaves, or manure, as the case may be, supplying the atmospherical conditions without much effort on the part of the grower. All that he has to do is to admit air in the usual manner, and keep up his supply of plants by means of frequent sowings, commencing at the new year, leaving some three plants in a 4½-in. pot, and giving a little weak liquid manure when the foliage covers the soil. What I wish to impress upon the reader is that growth must be rapid and unchecked, and the above-mentioned method best ensures this.

Forced Figs.—If one fruit is more a luxury than another it is the Fig in a forced state, and few that come into Covent Garden are so liable to sudden fluctuations as regards marketable value. Unlike the Grape and some other fruits, there can scarcely said to be any steady demand for early Figs, so that comparatively few growers make a feature of them. Sometimes, when the season happens to be more than usually brisk, Figs fetch long prices; I have known good samples to realise 24s. per dozen in May; at others they are a drug, scarcely to be got rid of. Happening to be one day in a fruiterer's establishment in the centre row when a box of figs came in, the proprietor remarked: "What a pity that these did not come yesterday; they were wanted, and I could have allowed 16s. for them; to-day there is no demand for figs." Later on in the day I was informed that they were sold for 8s.—just half of what they would have realised the day before. This is a fair illustration of how wonderfully the prices obtainable for this fruit may vary, even in the course of a few hours. I should not advise that Figs be grown in pots for profit; the labour involved would be, I think, too great; but, planted out, they no doubt pay very well, taking one season with another. A successful grower of early Figs for market has them planted out in a span-roofed house, the roots having the choice of an indoor and outside border. The trees are trained to the roof, or rather to a trellis some 12 in. from it, and the fruit thus grown is good and handsome. In France, more especially in the neighbourhood of Paris, Figs are forced to a considerable extent, for this fruit appears to be more popular the other side of the Channel than with us. The method there followed is much the same as above detailed, but the roof is generally formed of lights, which are removed during a portion of the summer, in order to thoroughly harden the wood.

Pit Strawberries—so called because they are grown in frames instead of houses—follow closely upon the heels of the forced fruit, and form as it were a link between this latter and the main outdoor crop. Kent for a number of years appeared to enjoy a monopoly of this frame-grown fruit, much of the best of it coming from the neighbourhood of Sevenoaks, from which place I believe that a quantity of fine fruit still comes; but "pit Strawberries" are now grown in the home counties generally. The greater portion of this fruit is grown without the aid of artificial warmth, but some growers get them along with manure heat. The berries of these pit Strawberries are generally speaking large, but they never appear to acquire that high glaze and perfect finish observable in good house-grown fruit. The nature of the season regulates the coming-in of this pit fruit, but generally speaking the first gatherings make their appearance the last few days in May, realising about 5s. per pound, soon, however, coming down to 3s. per pound, which may be regarded as a fair average price. A few years ago, Princess Alice Maude, Oscar, and Princess of Wales were almost the only kinds grown; now, Sir J. Paxton, President, Sir C. Napier, and others are also in favour. The last-named, however, is generally pale under pit culture, and house-grown fruit coming in at the same time will command quite a third more in price. The fact is that good well-finished-off house-grown fruit, large in berry, well glazed, highly coloured, is always preferred when it can be obtained; but by the beginning of June this gets scarce, and then the pit growers get their turn.

J. C. B.

Wasps.—We have killed in the cottage gardeners here 220 queen wasps, and they still seem plentiful. If the present dry weather continues fruit will, doubtless, be much damaged again this season. Last year I destroyed besides queens over fifty nests.—JOHN PHILLIPS, *The Cottage, Llanstephan*

THE KITCHEN GARDEN.

Tomatoes under Glass.—As Tomatoes can only be relied on from open-air walls for a comparatively short period, their cultivation, either in pots or boxes, or narrow borders in houses specially constructed for the purpose, has become a regular established custom in gardens of any extent. For the first six months of the year the supply must be got from heated structures, and we find plants with their roots confined far more prolific than when planted out with unlimited root run; for Tomatoes are such strong rooting and gross feeding subjects that to keep them at the highest stage of fertility we treat them just the same as Figs, by giving them a small quantity of soil to start with and top-dressings, gradually extending the border space when they are heavily taxed with crops swelling off. We have a roof covered with Vick's Criterion that has been bearing well all this year, the plants being in 12-in. pots, with quite a mass of roots. In addition to abundance of weak liquid manure, we also give them a slight top-dressing every alternate week of fowls' manure mixed with loam—one of the best fertilisers I have yet tried. A few days after it is put on a mass of white thread-like roots will be seen permeating the mixture in all directions. For a late summer and autumn supply, plants potted and set in a sunny position outside, and removed to pits or an orchard house before the autumn rains set in, are safe from the disease; and those on open walls produce abundance of fruit for use while ripe, and for hanging under glass to ripen. The main crop for next winter and spring supply is now set out on a sunny border, and will soon be put into fruiting pots that are only half filled with soil at first. We find good loam rich enough without any stimulant, and it should be rammed in firm, so as to get short-jointed, firm wood, that always is more fruitful than over luxuriant growth. All stimulants are added in the shape of top-dressings, or in a liquid form. Vick's Criterion, Hathaway's Excelsior, and The Trophy are sorts which we find good in every respect.—J. GROOM.

Cabbage Sprouts.—The following simple plan I have found very efficacious in securing a good supply of Cabbages or Sprouts for the following winter, viz., when the heart is cut off instead of leaving the stump 1 ft. long, with a portion of the old leaves on it, take a sharp knife or hook and cut the stump off close to the soil; it will sprout out and produce good sprouts by the winter, and in severe visitations of frost, such as we have had during the last few winters, these will remain fresh and green, while those left in the ordinary way will all perish. I have tried the plan on various occasions and feel sure that anyone giving it a fair trial, by cutting off one half their bed, and leaving the other half in the ordinary way, will be quite satisfied with the result.—J. G. Linton

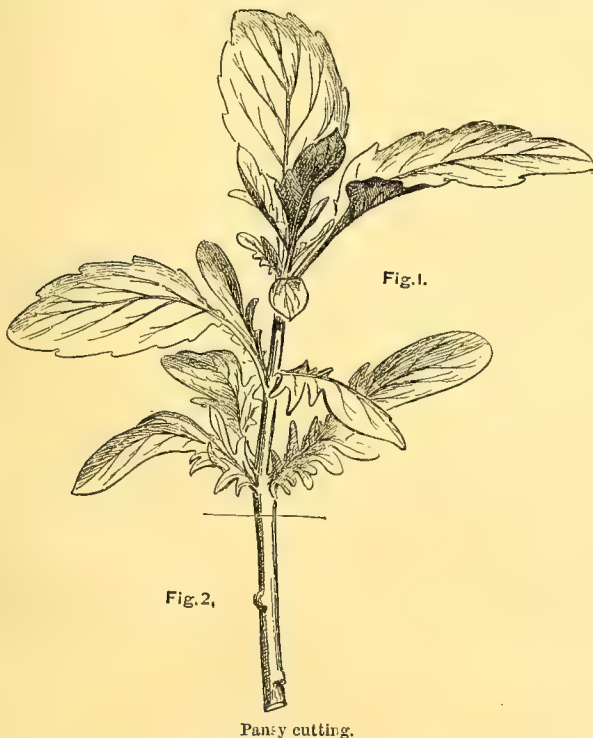
Early Sunrise Pea.—I send you a sample of this new Pea that you may judge of its quality, size, &c., for an early sort. It is a large Marrow. Those sent were grown in an open, exposed field, without a hedge, where they were sown in November last. Our first were picked June 6 from this field. Sangster's No. 1 (best early strain) were sown under exactly similar conditions three days earlier in the same field, and both came in at the same time, though Sunrise will grow double the crop, and realise more than one-third more per green bushel on the market. Our first lot, picked, as I have stated, June 6, made £1 per bushel.—JOHN DAY, JUNR., *Ash, Sandwich, Kent*. [The sample sent was that of a very superior early Pea—much better than any we have seen in the market this year. Its colour, flavour, and size are all good, and when better known it cannot fail to be a favourite.]

A Mushroom Farm in Mammoth Cave.—An enterprising Frenchman, who had already had experience in Mushroom culture in the vicinity of New York, complains that he finds no cellars sufficiently large for his increasing business, and also that the conditions of temperature and moisture are not uniform enough to ensure the best results; he therefore offers to rent a portion of Mammoth Cave, Kentucky, for the purpose of raising edible fungi. This will not interfere with the exhibition of the wonders of the great cavern to visitors, many square miles of which are never seen by tourists at all. The portion mentioned as possibly to be devoted to Mushroom beds is what is known as "Audubon's Avenue," which is said to be about half a mile long. The idea of thus turning caverns to profitable account for the cultivation of Mushrooms, though new in America, has long been a familiar one in France. One of these caves, at Montrouge, is said to have six or seven miles' run of Mushroom beds, and the daily yield of marketable fungi is about 400 lbs. weight. Another such cave, near Frepillon, is reported as sending, on favourable days, as many as 3000 lbs. of Mushrooms to the Paris market, from beds aggregating sixteen miles in length. Still another, at Méry, is said to have had under cultivation in 1869 over twenty-one miles at once, and afforded employment to a large class of labourers, who devoted themselves wholly to the business of

raising Mushrooms, not only for the French markets, but also for exportation. One house alone reports 14,000 boxes of preserved Mushrooms as sent to England in one year. The special advantage of subterranean over open air culture lies in the fact that, owing to the uniformity of temperature, which in Mammoth Cave hardly varies from 56° Fahr. either winter or summer, the business can be pursued with equal success at all seasons of the year and in all kinds of weather.—H. C. HOVEY, in *Scientific American*.

PROPAGATING.

The Pansy.—The best way of increasing the Pansy is by cuttings put in in September; use well-drained 5-in. pots, and fill them with a compost consisting of loam, leaf-soil, and sand sifted through a $\frac{1}{2}$ -in. sieve; press all down gently, so as to make the material moderately firm. Select the cuttings from around the crown of the plant, without flower-buds, and not pithy or hollow: make them as shown in fig. 1, removing the bottom leaves, so as to have a bare joint. Insert them with a dibber, fastening them well in; give a good watering with a rosed pot, and place them in a close frame. A



northern aspect is best, as there they require no shading, and consequently do not become drawn. As soon as they begin to root, which will be in about a fortnight, give air gradually till they are ready for potting off.

Another way of procuring good strong plants is to cut them as shown in fig. 2, selecting for the purpose the strongest pieces. Pot them singly in small 2½-in. pots, and subject them to the same treatment as that just described. These will soon require a shift into a larger pot, and will make very early blooming plants.—H.

Many fail to root cuttings of Pansies, simply through not selecting the cuttings with sufficient care; the young shoots that spring from the base, if taken off before they flower, and inserted under hand or bell-glasses in light, sandy soil, and kept moist and shaded, will strike root and make at least ninety per cent. of good plants, but if the points of old flowering shoots are taken, they will be found hollow in the centre; and, although they will keep green and look like growing for some weeks, yet in the end ninety per cent. will fail. As many will now be increasing their stock of Pansies and Violas, I would especially advise them to use only the small, young shoots for cuttings; and in dibbling them in they should make sure that the base of the cuttings touches the bottom before the soil is pressed about them. Then give a good soaking of water, and shut up closely, which is all they will require, with the exception of removing the glass at night.—J. G. L.

A RHODODENDRON GARDEN.

THE beautiful garden at Duneevan, Weybridge, might appropriately be called a garden of Rhododendrons, for they form its principal feature, and a striking one too, particularly during May and June when the plants are in flower. It would be difficult to find a garden better adapted than this is for showing off to the best advantage these brilliantly-flowered shrubs, for, like other masses of colour, they have a decidedly better effect when not seen all at once on a flat surface. The Duneevan garden occupies a steep declivity running down to the edge of a fine piece of ornamental water. The Rhododendron beds are placed on the slope, and are shaped irregularly, so as to avoid any formality, and everywhere they are surrounded by a verdant carpet of well-kept turf. It is not, however, the Rhododendrons only that make this such a beautiful garden; there are the trees—ponderous old Oaks, the glory of the once royal domain of Oatlands Park. Some half-a-dozen of these noble trees give an air of grandeur to the place, their wide-reaching limbs overhanging the greensward in a charming manner. Then there are some extremely fine Conifers, among them the largest plant we have seen of the Royal Hemlock Spruce (*Abies Albertiana*), upwards of 60 ft. high, and greatly superior to the ordinary kind (*A. canadensis*). Of the Knap Hill Cypress (*Cupressus Lawsoniana erecta viridis*), there is the finest specimen here that exists in a private garden in this country, and it is a noble tree. There are likewise noteworthy examples of the Wellingtonia, *Cupressus macrocarpa*, *Abies Nordmanniana*, *Thuja gigantea*, some 60 ft. high, and *Picea magnifica*, said to be the largest plant at present in this country, besides fine specimens of other trees, and notably the late-flowering varieties of Laburnum, which are grandly in flower now.

It is among these Rhododendrons here that Mr. McIntosh has attained such wonderful results in the growth of Lilies, particularly *Lilium auratum*, which are the largest which have been produced in cultivation. Just now there are some remarkable plants of *Lilium giganteum*, by far the largest we have seen. A fortnight ago the largest plant was 4 ft. in height; the stem measured at 3 in. from the ground 13 in. in circumference; at 9 in., 12 in.; at 24 in., 10 in. The foliage is proportionately large, and all the plants, which are growing in an isolated bed, are in the most vigorous health; when these are in flower they will be quite a sight in themselves. *L. Browni* is likewise remarkably fine this year, and promises to flower freely. It is the Rhododendrons that we more particularly allude to in this notice, and they certainly comprise a very fine collection, almost every known sort being included, besides many unnamed seedlings. The Ghent Azaleas are also in great variety, and form a very bright feature with the Rhododendrons, particularly the large isolated specimens, which are huge masses of brilliant colours.

The varieties of Rhododendron, though so numerous, may, however, be conveniently divided into sections characterised by the predominating colour of the flowers; thus there are whites, crimsons, purples, pinks, lilacs, scarlets, but of course in many cases there is a transition from one section of colour to another. Of the hundreds of varieties in Mr. McIntosh's fine collection the following embodies a representative selection. Among light-coloured varieties the finest are Purity, very pure and showy, with a faint yellow eye; Mrs. John Clutton, one of the finest whites, fine flower and truss; Madame Carvalho, blush at first, but changing to pure white; Mrs. Russell Sturgis, pure white, copiously spotted with deep chocolate-purple; Princess Mary of Cambridge, light blush, very pleasing; Mrs. Thomas Wain, pale rose, deep spot, very fine; Mrs. Thomas Agnew, pale rose, edges brighter, yellow centre; Minnie, blush white, spotted with chocolate; The Queen, fine in truss and form of flowers, which are blush, changing to pure white; Sappho, white, conspicuously marked with maroon; Papilionaceum, nearly white, with cluster of orange spots and highly attractive. Alarm is a very nice flower, but somewhat superseded by several others, such as Arthur Helps, Louisa Countess of Ashburton, Helen Waterer, B. W. Currie, &c.; it has a white centre, margined with a band of brightest scarlet; the truss is, however, small.

Of dark-coloured sorts are Mrs. John Waterer, one of the best as regards colour, the light centre being very prettily spotted; Michael Waterer, a grand variety, fine in truss and flower; Meteor, a very brilliant scarlet; Mrs. William Bovill, a highly attractive

sort, with rich rosy-scarlet blooms; Lady Falmouth, deep rose, heavily spotted; Lady Clermont, rosy-scarlet, deeply blotched; James McIntosh, named in compliment to the owner of Duneevan, remarkable for bright rosy-scarlet blooms and fine habit and foliage; Blandyanum, very deep rose; Pelopidas, very fine crimson, large truss; Brutus, bright rose, very fine; Sigismund Rucker, rich magenta, finely spotted; Mrs. Charles Thorold, bright pink; Mrs. R. S. Holford, rich salmon pink, truss large, and flowers of fine shape; Lady Eleanor Cathcart, a unique colour, a rich Geranium-rose tint, the chocolate spots very beautiful; Joseph Whitworth, Duleep Singh, and Old Port, three of the darkest varieties, being a deep purple-lake tint; the first of the three is much the finest sort.

Among newer kinds we noted Kate Waterer, one of the finest varieties yet raised; the truss is remarkably large, the flowers large and of perfect form, of a clear rosy-crimson, marked with a heavy yellowish blotch; James Marshall Brooks, a rich scarlet, having a conspicuous brown spot; Countess of Clancarty, a finely-marked flower of a light rosy-crimson hue; Helen Waterer in the way of Alarm, but much finer as regards size of flower and truss; Lady Annettede Trafford, a creamy white flower with heavy chocolate blotch; Crown Prince, a bright rose-yellow blotch, very fine truss; Mrs. J. Shuttleworth, a beautiful crimson-scarlet, light in centre and much spotted; and B. W. Currie, brilliant crimson, light centre, most beautiful. Among numerous others there are three which well deserve especial mention and a place in every collection of Rhododendrons, viz., Frederick Waterer, most intense fiery crimson, fine-shaped truss and most beautiful dark foliage; John Walter, intense glowing carmine, good flower truss, fine form; Lady Armstrong, pale rose, much spotted, distinct and beautiful. W. G.

NOTES AND READINGS.

Nobody writes anything half so cynical of our friends the florists as they do themselves. One of your monthly contemporaries, in which the fraternity have lately taken refuge, "has been requested" to reprint a "dissertation on perfection of form in the Tulip" (written about forty years ago), for "the benefit of the younger race of florists." From this dissertation we learn that no one thinks of discussing the merits of any particular variety until "the form of flower" is settled. Great difficulty has been experienced in arriving at a satisfactory conclusion as to what constitutes perfection of form in the Tulip, the greatest diversity of opinion prevailing even among experienced cultivators. Apart from the various conflicting opinions expressed by amateurs and dealers on the subject, there are, or have been, some four people, it appears, who have interpreted Nature's unfulfilled intentions within measurable distance of perfection, although these do not by any means quite agree on the subject. The first "considers a semi-oblate spheroid the best form." The second "has long been an advocate of one-third of a hollow ball." A third "differs from both the preceding, and says that the half of the sixteenth part of a circle is the most perfect form"; while the fourth simply "prefers the half of a hollow globe." These texts serve for rather a long sermon on the subject, but the conclusion arrived at is that "the flower must expand enough to open the internal beauties to the spectator." Most people have arrived at a similar conclusion, we believe, with regard to the Tulip and other flowers, but the florists have reached it by the ratiocinative process, and there can hardly be any reasonable doubt that one thing which has caused them to "arrive" at such a conclusion is the fact that no art of the florist has yet been discovered whereby the Tulip could be prevented under healthy influences from displaying its "internal beauties" to the spectator by expanding its petals in that wide and all-embracing manner to the sun, regardless of oblate spheroids and hollow globes, just as if it would fold all the florists in its bosom, and keep them there; and so they have indulged Nature where she will not be compelled, we presume. Did the florist never notice all these three hundred years during which they have been wrangling over the shape of the Tulip that it is the child of the bright May sun? and that it never shows its beauties perfectly till its petals are reflected openly to the sunshine, which rules the degree of expansion, and sets all the florists' fancies at naught? If the florists be right in their ideas regarding the forms and colours of flowers—and they have never yet taken any species in hand

that pleased them—it is sad to think how imperfect and out of order the whole creation must be, for there is no reason to suppose that the florists' favourites are exceptions. That being so, what about the Grass and the trees? What a field here for improvement!

The character given of the Grizzly Frontignan Grape in the *Florist* of May is both queer and incorrect. Queer because after being described as strong, free, fruitful, and exceedingly rich and excellent to eat, we are told that is so uncertain as to be scarcely worthy of cultivation. Wrong because it is described as almost invariably shanking badly, which it does not, and its bearing berries below medium size, which is not the case. The berries are described by the best authorities as above medium size, which is correct, for they are sometimes as large as those of the Hamburg; it is an excellent Grape, and does not deserve the character given it in the *Florist*.

I do not think your American correspondent, Mr. Hovey, is guilty of intentional exaggeration, but according to his statements either the English grown Black Hamburg Grapes which he has seen have been small, or the American Grapes very large. A fairly good Black Hamburg measures at least $\frac{3}{4}$ in. in diameter, and 1-in. berries are common. American Grapes twice as large must therefore be "whoppers." I have no doubt, however, but Mr. Hovey knows what he is talking about, and if American Grapes can hold their own successfully in the open market against Hamburgs and Tokays, and fetch the same prices, the fact deserves attention, and it might be desirable to give some of the American Grapes a fair trial in our Vineries, as Mr. Hovey suggests. It is curious that Grapes that are cultivated in America and are popular should hardly be known to cultivators in this country even by name.

I do not believe in that system of Vine culture, noticed in another paper, which necessitates restorative measures while the Vines are still in their youth, and have hardly got a grasp of the border not long made for them. Sensational crops followed by mildew in an aggravated form (when that scourge is not at all prevalent) and exhaustion of the Vines is not Grape culture of the highest order. It rather looks like culture under stimulants, followed by reaction and the usual consequences. Given a healthy soil and well-grown canes to start with, it is the cultivator's fault if, through excessive cropping and diseases, he has to resort to restorative measures, that with people with few Vineries means long blanks in the supply, and, perhaps, misfortune to the gardener. Neither will gardeners be prevailed upon to return to the long or short rod method of Vine pruning in preference to the spur system, which is the best as well as the most convenient as a rule. It is a complete delusion to suppose that increased vigour in the Vines can be better secured by laying in long shoots instead of spurs when the actual leafage is not increased thereby. Besides, the spur system best insures well ripened wood.

While on this topic attention may be directed to the fact that there does not now appear to be so many prizes offered for "the largest bunch," and there seems rather a tendency to discourage their production. Good and well-known cultivators are of the opinion that such prizes fulfil no good object. They argue that a prize given for the highest general excellence—size combined with quality and finish—covers the whole ground and promotes good Grape-growing, whereas in prizes for large bunches only do not, nor never have done that. Competitive classes may be as varied as possible—one, two, four, six, ten, or twenty bunches—but real merit based upon the use of the Grape as a dessert or wine-producing fruit should be the guide in the distribution of the prizes.

The editor has, in his table notes, commented on the peculiarities of the climate of these islands in referring to some tender Rhododendron blooms he had received from Argyleshire, and without doubt the subject is a suggestive one from a horticultural point of view, and one that has not hitherto attracted the attention one would expect. The climate of the British Isles varies exceedingly, especially on the sea-board or near it, as is indicated by the vegetation, and the possibilities in the way of gardening under such circumstances differ proportionally also.

On the moist and mild west coast of Scotland the cattle are

said to "eat green Grass all the year round," and many Conifers and tender shrubs thrive there without protection that would perish in the neighbourhood of London. The east and the west coasts are as different as though they belonged to a different hemisphere. The island of Bute has a milder climate than any other part of Scotland, and is warmer than many parts of the south of England, and, not being excessively wet, is favourable to many tender trees as well as to invalids. The mean annual temperature of Sillioth, on the Solway, is as high as 49° , being only 1° below that of Torquay. At Keswick, not far from there, I see it stated in a local paper that Gooseberries grown in the neighbourhood have been sent into Keswick market during twelve successive seasons the first week in May, and have fetched 1s. per quart. During the past cold seasons some of the best samples of Corn came from Cumberland, where the harvests are remarkable for their earliness. In the Isle of Man the *Musa Cavendishi* has stood the winter, and there is no place in these islands better adapted for sub-tropical gardening. I remember the late Knight of Kerry stating in *THE GARDEN* that the way in which he propagated the *Fuchsia* on his estate in West Ireland was to cut off large limbs and stick them into the ground, and the same can be done in Manxland, where the *Fuchsia* is almost an evergreen and a tree.

Allusion has frequently been made to the uselessness of planting certain tender Conifers and other trees in England to be periodically destroyed, but it is a question of choice of situation as much as anything. At Castle Kennedy, near Stranraer, in Wigtownshire, we believe many species that are tender in the south thrive well and make fine specimens, and the same applies no doubt to many other districts both north and south. The pity is that many of the inhabitants of these favoured districts do not realise their advantages, and writers to the horticultural papers are apt to forget such matters as well.

PEREGRINE.

THE FRUIT GARDEN.

OUTDOOR GRAPES.

PERHAPS a few words from an old amateur gardener in connection with the article by "W. T.," on the possible ripening of Grapes in the open air, may add to the interest of the subject by the fact of my experience having thirty years' advance of his starting point. "W. T." took possession of his cottage in 1845. I came home a schoolboy in 1816, and for the whole sixty-five years gardening has been my hobby. Our village lies in South Hants, is well sheltered, and the subsoil being open gravel, the summer temperature is very high. At the time I speak of every house with a protective railing and a southern aspect supported a Vine, generally the old Black Cluster, and every newly-built cottage was quickly covered with Sweetwaters. These invariably ripened, subject of course to the length and warmth of the summer for quality. So abundant was the general produce that quantities of good wine were made, and the cottagers made the sale of their crops for the purpose an item towards the rent. At that time no danger from frost was apprehended after May 12, and the frost in autumn seldom made its appearance till the middle or end of October. This went on for years, but by-and-by a gradual change commenced; the Grapes ripened only partially, and then not at all. The Vines gradually disappeared, and now not one remains. The cause seems evident—the shortness of the summer and the insufficiency of continued sunshine. But if I may bring the change of seasons to bear on other produce now entirely out of cultivation, I may mention Green Gage, standard Plums which were sold by the gallon, Apricots which grew by thousands on farm buildings, Cherries which were hawked at 4d. a pound, and Merries, a small black prolific kind, at 2d. All the trees of these are gone, and the ground cropped; Cucumbers at harvest-time were two for 1d.

S. W.

Black Fly on Peach Trees.—"G. S. S." in his remarks on this aphid (p. 529) seems to think the only way of getting rid of it is to fumigate, syringing with any insecticide, he affirms, being of little use, owing to the leaves being curled up through the attacks of the fly, and thereby forming a shelter for it. The best way, therefore, would be to pluck off the worst of the leaves and burn them, as, after being badly attacked, they are of little benefit to the tree,

and if not pulled off would soon fall off. Having some Peach trees which became infested with this aphid some three or four weeks ago, I boiled a small quantity of tobacco paper in water and syringed the trees with it two or three times, an operation which has apparently had the desired effect, as there has been none of the fly seen on them since. The best time to syringe is just before the sun gets on the trees, as then the sun helps to destroy the fly.—D. W.

WATERING AND MULCHING.

THE rainfall of last month in this neighbourhood hardly exceeds $\frac{3}{4}$ in. The early part of the month was cold and ungenial as well as dry, but during the latter part, as well as the early part of June, the day temperature has been high, with generally a cloudless sky and bright sunshine, which has retarded rather than otherwise the progress of crops generally. It has also been exceedingly unfavourable to recently transplanted trees and shrubs, and has rendered in their case copious waterings absolutely necessary. But unfortunately this operation is in too many instances performed in anything but an efficient manner, being in too many cases merely poured upon the surface, and when this happens to be in any degree uneven, the greater portion of it at once runs away from the place where it is wanted, and even if it does not do this, it soon evaporates. Mulching is always of very great benefit to recently transplanted trees and shrubs, or, indeed, to plants of any kind, and during all seasons, but doubly so during periods of prolonged drought, such as we have for some time been experiencing, and this fact can hardly be too strongly impressed upon the minds of those who may have recently transplanted trees, &c. The operations of watering and mulching ought generally to accompany each other, or rather the latter ought to follow in the wake of the former. Whenever it is perceived that a plant is suffering from drought, a basin should be formed around it, and should be filled with water, and as soon as that has been absorbed the soil which formed the sides of the basin or hollow should be levelled in, and a mulching of some considerable depth at once applied. Such mulching may, of course, consist of various materials, but there is possibly nothing better than stable-yard manure or litter, but should this be unobtainable or objected to, then Cocoa-nut fibre refuse, tanners' bark, the mowing of lawns, &c., may all be used for this purpose, and one effectual watering followed by efficient mulching will be found to be more beneficial than any number of mere surface waterings. In cases, however, where it may be considered necessary to apply frequent waterings, the mulching materials can be removed and replaced, or the water may be poured upon the mulching, which will in a great measure prevent it from running away, and the fertilising properties contained in the mulching will be carried with the water into the soil, to the benefit of the plants to which it is applied.

P. GRIEVE.

NOTES FROM BADEN-BADEN.

THE North American *Eriogonum* is now a mass of yellow, and a capital plant it is for a dry, sunny place on the rockwork. *Verbascum olympicum* some days ago was the stateliest plant in my garden. It differs from our common *Verbascum* in its habit of throwing out many side branches from the base to the top of the main stem, so that it assumes a candelabrum-like pyramidal form, and all are alike floriferous and simultaneous as regards flowering. For quite a fortnight this plant makes a show worth coming a long way to see. *Campanula barbata alba* is a neat, compact species, the bells of which are large, but numerous, and of a harmonious shape. *C. punctata*, with yellowish-white, purple-spotted, large bells, is also a desirable plant. *Armeria grandiflora*, one of the showiest of the tribe, is of a deep rose colour.

Ethionema pulchellum is a better plant than *Æ. grandiflorum*. It is more compact-growing, the heads are rounder and of a good deep rose, not changing to white, as those of the former do. For a little clump or an edging it is very suitable and a grand plant. *Aliums* are not plants that everybody likes, but *A. oreophilum*, a dwarf species lately brought from Turkestan, is really beautiful. It is only a few inches in height, and its large umbels of flowers are of a blood-red, glaucous colour. A great contrast to it, as to size, is another species from Bokhara, now flowering for the first time in Europe. In this case the scape is fully 6 ft. in height, and the head, about 4 in. in diameter, is beset with more than 1000 flowers of a fiery deep purple. The leaves are Agave-like, 5 in. in breadth, and nearly 3 ft. long. *Bomarea Caldasii superba* (the Bittou variety) has numerous umbels of very beautiful red and yellow flowers, the petals being red and the sepals yellow, and the latter tipped with many bright red spots; these colours are nicely blending together, and the plant altogether well deserves careful cultivation.

MAX LEICHTLIN.

Baden-Baden.

TOBACCO AND ITS CULTIVATION.

A QUESTION was put to Mr. Gladstone in the House of Commons only a few days ago as to whether it would be allowable for Tobacco to be grown in Ireland. He said, "No objection could be reasonably taken to any agricultural produce being grown." It would, however, be useless to attempt its growth for commercial purposes anywhere in the United Kingdom. The plants will grow, and be quite equal in appearance to those produced in Cuba, but they will have little or none of the volatile oil which produces the peculiar odour of Tobacco, and the reason is no wet climate will allow that oil to form; rain invariably spoils Tobacco, even in Cuba, especially when the leaves are ripening. In Cuba the finest Tobacco in the world is grown, and it is sown in autumn, and is ready in the dry season about May. The plants are then cut over and the growers risk a further crop from the old plants; though what may be got will not be ready till the wet season, even in that dry climate, about September. Assuming that we took every precaution by autumn sowing, say, in August, so that we could plant out in spring and secure the crop in August or July, we should have considerable difficulty in keeping the young plants through the winter. They would require great care in warm houses; much the same treatment as *Calceolarias*.

And I should like to know what quantity of plants could be so managed to produce (supposing they escaped rain) when ripe sufficient to make any appreciable difference in the revenue.

If we sow in spring we have fine young plants, but they do not ripen properly till September, always a wet time in England. In Cuba the rain that falls in winter causes the plants to grow rapidly, and is an advantage, but frost would destroy them.

I had a brother who purchased a small piece of Tobacco ground in Cuba, in the year 1841, and grew Tobacco for some time. He was very earnest about it, but the Spanish Government were everlastingly interfering with him, and at last he gave it up, and went to Ceylon to carry out his plans, taking with him the best seed, but he died soon after his arrival in that island. I was also interested in the subject at that time, and he sent me full directions for the growth and curing of Tobacco; also seeds of several kinds, and from his directions I did produce a sort of Tobacco, in appearance the same as that grown in Cuba, but utterly devoid of flavour or aroma; on this latter of course depends the value of the article.

Wherever Tobacco is grown there are endless shades of difference, the quality of the soil being, of course, the reason why it is good or bad, and it is by no means a simple affair to grow Tobacco, even in Cuba. The following is a sketch as to how Tobacco is managed in Cuba; any one can try it in this country, for I hardly suppose

the Revenue officers would interfere with them, although, according to some old law, only a limited number must be grown:—

Seed beds are prepared towards autumn, from September to November, much depending on some rain at that time, the ground in Cuba being hard and dry. The seed is broad-cast, and left to germinate without covering, the usual way with these minute



Croton recurvifolius.

seeds. Planting out requires very careful preparation of the ground. It is ploughed, then cross ploughed, and every weed taken out and the ground levelled. When the young plants are about the size of small Cabbages, they are dibbled in the same way with a dibber in rows 3 ft. apart, and the same distance between each plant; the difficulties of the planter then commence, and they are extremely formidable. The plants are then attacked by three

distinct enemies, and unless daily measures of destruction are taken the crop is lost. Two of these are caterpillars, the other a kind of wireworm. One caterpillar is very large, of a pale green colour, and lies underneath the leaves. Two of these will soon finish up an entire plant; the smaller one affects the extremities and the flowering stem. These are all handpicked and destroyed, but it takes many days to do so and continual labour. When these are entirely removed, the plants have a little earth drawn to the roots of each, and at that time they will be about 3 ft. high, when the flower-stem appears, and must be pinched off, as well as the side shoots, leaving only the leaves.

When these are considered to be ripe, the plants are cut over and carried under cover, where they remain till a certain toughness is observable; they are then suspended upon lines or rods until they are tolerably dry. The next process is to get up a slight fermentation, for which purpose they are all packed together in wooden bins, and when sufficiently fermented the colour changes to brown, and the true Tobacco flavour is formed; the leaves are then ready for laying out flat and tying in bundles, or, as is sometimes done, folded down the middle, leaving all the mid-ribs outside. In this state they are again slightly fermented, after which the produce is ready for market.

Any one can go through this planting and making Tobacco; I have done it several times. One gets a Tobacco, but it is not a marketable sort. It would be so, provided the plants were grown under glass and never wetted, but it is impossible to grow them in this country without rain falling on them. I imagine, therefore, that the resinous oil is merely upon the surface of the leaf, that it is washed off by the rain, and must be soluble in water. It might be urged by some that Tobacco thus grown might be used for the purpose of adulteration. It would be far too costly and far too troublesome.

W. T.

Dorset.

THE INDOOR GARDEN.

CROTON RECURVIFOLIUM.

THIS new variety is one of the handsomest of the broad-leaved section of the genus, and is remarkably distinct, both in growth and foliage, which, as may be seen by the accompanying woodcut, is strongly recurved. The midribs and veins, which are crimson bordered with yellow, are much sunk, giving the upper surface of the leaves a ridged and waved appearance. The variegation is well marked, and the contrast of the various tints to the deep olive-green ground colour is very pleasing. It is now being distributed from the Royal Exotic Nursery, Chelsea, by Messrs. Veitch.

TUBEROUS BEGONIAS FROM CUTTINGS.

THERE is one method in regard to these that Mr. Fish (p. 582) does not at present seem to be conversant with, and that is putting the cuttings in the open ground in autumn—about August is the best time. Generally a good many can be found about the base of planted-out specimens, and these inserted much as we do *Pelargonium* cuttings root at once, and the season being advanced, and they being apparently aware of this fact, make no attempt at top growth, but settle down to tuber formation in good earnest. In fact, the rapidity with which this process goes on is quite abnormal, and by the end of September tubers of sufficient size to commence the new year with are formed. I distinctly object to Mr. Fish's introduction of peat into the compost in which to grow these beautiful plants. According to my experience, tuberous-rooted Begonias abhor peat. I have never found anything suit them so well as half-rotted leaf-mould and very fibrous loam. Rotted Couch Grass and weeds generally make a first-rate compost; in fact, they delight in a very porous soil rich in humus, and with a free admixture of sand. We never pot hard; just drop the rough soil into the pots and around the balls. In such a medium the fat roots ramify freely and quickly occupy every part, which they will not do if the soil is fine and closely packed, or at all inclining to peat. Tuberous Begonias for bedding we now never pot or put under glass at all. When they are dug up in autumn they are put into boxes with a little dryish soil; a hole is dug in the floor of a dry shed (for the want of better convenience), the boxes are placed in it, and the soil removed is returned, a sufficient depth being placed over them to keep them secure from frost, and here they remain until April. They are then taken out, planted boldly in a bed in the open ground close together, and from this taken as re-

quired for the various beds and other purposes for which they may be required; they do splendidly thus. Our motto is—coddle nothing.

T. SMITH.

Newry.

***Pelargonium Lucie Lemoine*.**—White flowers being always in demand, this *Pelargonium* is well worthy of notice, for although veined at the base of the petals, the colouring is so slight as to be almost imperceptible, and the flowers being round, of medium size, and the edges crimped, besides being borne in compact trusses, render this a very useful kind in a cut state. The habit of the plant can scarcely be called good, being somewhat weak, but the flowers are freely produced and on long stout stems, which for cutting purposes is a point in its favour.—H. P.

Camellias without Shade.—Camellias grow most luxuriantly in a cool conservatory here, and the crop of bloom is both great and lasting; so much so, that we have frequently a supply of *Camellia* blooms for eight months at a time. Camellias are never at any time shaded here. The growths sent had their tops close up to the glass in the full blaze of the sun. Under this treatment they have been since ever they started, and like this they will remain. Water in abundance is given at the root, and to this and their exposed manner of making wood do I attribute the heavy crops of flowers which we invariably secure.—CAMBRIAN.

TREES, SHRUBS, AND WOODLANDS.

NOTES FROM SOUTH WALES.

***Laurustinus*.**—Three or four years ago large clumps of these were showy masses of pure white flowers from November until the end of January, but during the last two winters they have made no attempt at making even the slightest display of bloom, and it now looks as if we had seen the best of them for some years to come. This is to be regretted, as no late autumn-flowering shrub is prettier than the *Laurustinus*.

***Magnolia conspicua superba*.**—Nurserymen who advise in their catalogues that this should be planted and trained against a wall in order to insure its doing well must be determined to keep on the safe side. Here it does remarkably well as a standard, one tree being 20 ft. or more in height, and over 20 yds. in circumference, and in this form I am sure it is far more graceful than we could ever hope to see it fastened to a wall. About the end of April, throughout May, and until now, it has continued to open its large white flowers, and when these are over it will still be attractive, as its fine foliage gives it a more ornamental appearance than that of most trees.

***Philadelphus coronarius*.**—There are several large bushes of this in fine bloom here at present, and showy subjects they are, the blooms being both large and plentiful, and the odour strong and lasting. Indoors it might indeed be too strong, and yet a few plants grown in pots and placed in a conservatory when in bloom might please many. Have any of your readers tried to force it into flower in winter?

Foliage with Flowers.—A short time ago some fitting remarks were made in THE GARDEN as to the uses to which the Corstorphine Plane and other fine-foliaged trees might be put in giving harmony and tone to masses of colour, such as occur in the case of *Rhododendron* clumps, the appropriateness of which has lately been well shown here. In ascending to the mansion from the lower part of the pleasure grounds a walk some 30 ft. wide is traversed, and at a little distance from one edge of this there is an undulating bank of *Rhododendrons*, which by themselves would have a very monotonous effect, but behind them rise to a great height a background of all kinds of fine-foliaged trees, and the result is that the combination is one of the most pleasing sights which any one could wish to look upon. The background trees consist of different kinds of Pines, green and variegated Hollies, Maples of different hues, light and purple-flowering Chestnuts, bronze and green-leaved Beeches, &c. None of these are ever clipped or trimmed, but tower up at will, and most certainly no one class of plants massed together as we generally see them could ever produce so fine an effect.

***Weigela rosea*.**—This is one of the hardiest and most beautiful of our early summer-flowering shrubs. It grows freely in both exposed and shady parts of the garden here, and it never fails to flower most freely. Some of the largest plants are 10 ft. high, and more than this through, and when furnished with their long drooping racemes of rose and white Foxglove-like flowers they are the admiration of all who see them.

J. MUIR.

NOTES & QUESTIONS ON TREES, SHRUBS, & WOODLANDS

The celebrated Cypress that stood near the city of Sparta for over 2800 years, and was described by Pausanias 400 years before the coming of Christ, has been destroyed by a band of strolling gipsies, who camped beneath it and left their fire burning. It was 75 ft. high and 10 ft. in diameter near the ground.

Bambusa Maximowiczii.—This Golden Bamboo is a pretty and effective plant just now. It has stood the winter without protection, and forms literally a mass of gold. It is a dwarf growing kind in habit like *B. Fortunei*, but it seems to have wintered better than that species, which is now in many places only recovering from the effects of the frost.—H. P.

Wellingtonia Cones.—A tree of the *Wellingtonia* here is producing abundance of cones; they are very ornamental, and we have the promise of more, as several young cones have formed lately on this year's wood. The tree is 11 ft. in thickness of stem a little way up from the ground, and its height is about 60 ft.—J. MUIR, *Margum, S. Wales.*

Raphiolepis ovata.—This bold and distinct evergreen shrub is remarkable for the freedom and size of its flowers, as well as for its foliage; specimens of it from Linton Park, Maidstone, seem quite untouched by the recent winter's cold, but we hear that it has been hurt in several places. Nevertheless, it has stood better than the common Laurel or the Portugal Laurel, and promises to be a good evergreen.

Conifers Decaying.—In our small park here we have two or three handsome Pine trees, which within the last year or two are showing signs of decay; some of the lower branches are withering, and there is no really vigorous growth. I fear the roots are getting down to the gravel, and am anxious to know whether anything can be done either by renewing the soil, manuring heavily, or aught else to save them. I may add we have lost two or three fine Pink Thorn trees from, I imagine, a similar cause.—J. D.

New Hardy Aralia (*A. Maximowiczii*).—This handsome *Aralia* may now be added to the list of hardy shrubs, as it has withstood the past few winters uninjured. Compared with the other hardy species (*A. Sieboldii*), it is much more slender and far more elegant. The leaves, which are about 6 in. across, are cut deeply into about seven divisions, borne on slender stalks, which radiate from the stem, so as to form a very compact plant. It is quite hardy in Messrs. Veitch's Coombe Wood Nursery, where it is planted in a somewhat exposed position in a heavy soil, and with Mr. Joad, at Oakfield, Wimbledon Park, it is likewise hardy. It is a highly desirable shrub, and one that ought to be generally grown.—W. G.

Laburnum Sports.—Under this head (p. 605) "W. J. M." describes a tree of the common *Laburnum*, on which the purple *Cytisus* had been grafted, and which in consequence produces, besides its natural yellow flowers, a peculiar hybrid called *C. Adami*. As there is in this place a *Laburnum* exhibiting precisely the same appearance, I am interested in ascertaining whether the opinion of botanists is generally in favour of the very probable and reasonable hypothesis of "W. J. M." In my case the hybrid is of a dull yellowish pink, the clusters much shorter than those of the yellow *Laburnum*, though partaking more of the character of it than of the *Cytisus*. On my tree the three kinds of flowers when dissected all show young seeds already formed in the young pods. The tree, about 40 years old, presents at this moment a curious and beautiful appearance. Perhaps some of your readers can throw light upon the producing cause.—CLERMONT, *Ravensdale Park, Nerry.*

Mock Oranges (*Philadelphus*).—A highly interesting group of these beautiful shrubs is brought to me from Mr. Stevens's garden at Byfleet, where between thirty and forty distinct sorts are represented. The most striking fact is that there is a great family likeness in all the kinds, though many of them differ materially in botanical details. All have white flowers, some purer than others; some are large and borne sparingly, while others are smaller and plentifully arranged in rather long racemes. All, moreover, have the somewhat heavy perfume which is familiar to everyone who knows the common kind *P. coronarius*, with, however, the exception of one named *inodorus*, which, as its name implies, is quite scentless. The large-flowered kinds include *P. latifolius*, one of the finest of all, with large, pure white flowers; *P. grandiflorus*, very fine; *P. californicus*, with large white flowers, produced plentifully; *P. speciosus*, flowers large and not so strongly scented as others; and *P. laxus*, of lower growth than the preceding, but quite as showy. Amongst those with smaller flowers produced in racemes may be named *P. coronarius* in several varieties, including the double flowered form, which is very showy, though the flowers are not so pure in colour as others; *P. Satzumi*, a pretty Japanese species, remarkable for its floriferous-

ness; *P. primulæflorus*, one of the prettiest of all, as the flowers are pure white, double, in form quite compact rosettes similar to a double Chinese *Primula*.—W. G.

ALPINE PLANTS AT HOME.

THE first visit to the European Alps of a traveller whose home is in the lowlands is an event in his life. The stupendous rampart of rocks thrust up above the level of the plains in the early youth of the world, before the birth of man, extends from the shores of the Mediterranean in a majestic sweep, like a half moon, round the northern side of the plain of Lombardy, and further east round the head of the Adriatic, till it comes to an end at the plains of Hungary. If our traveller happens to be one whose mind has been awakened to the interest and the pleasure derivable from the contemplation of plant life, not even the attractions of the giant forms of the rocky peaks which meet his astonished eye, not the domes of snow which glisten in the brilliant light of that southern sun, not the ridges of glassy ice which fill the gorges, nor any of the novel or splendid sights which fill his mind with ever fresh wonder and delight, will surprise him more than the infinite variety and the unspeakable beauty of the flora which everywhere spreads itself beneath his feet. If his visit is timed, as it should be, before the meadows have been mown, which spread themselves in the slopes and valleys of the sub-alpine regions which he first reaches, he will everywhere see a wealth of flowers which form the transition from those of the plains to the more strictly alpine plants which he will meet with later as he rises to the alpine regions proper. If he is early enough in the year he will see the meadows covered with the vernal *Crocus* and the woods bright with *Hepaticas*. Other flowers, with which he is more or less familiar, will at all times meet his eye, but brighter in colour, and spread with a more lavish profusion than he has been accustomed to. Later in the summer the meadows will be fragrant here with thousands of the soft lilac flowers of the fringed *Dianthus superbus*, and further on will blush crimson with the blooms of the gorgeous *Lilium bulbiferum*, chequered with the snowy bells of *St. Bruno's Lily* (*Anthericum Liliastrium*). Campanulas, Columbines vary the colouring with different tints of blue, and in particular a bright coloured Sage (*Salvia pratensis*) often grows in tens of thousands, and spreads a mantle of rich purple which quite hides the green of the Grass. If his upward path lead him through the Beech woods which spreads on the lower slopes of the limestone hills, he will not go far before he sees the modest crimson *Cyclamen europæum*, the alpine Violet, as his guide will call it, nestling its sweet-scented flowers in profusion amidst its round leaves; and further on the soft yellow of the Lady's Slipper (*Cypripedium Calceolus*), equally fragrant, but more stately, rising more than 1 ft. high in the centre of its bright green envelopment of foliage. It is impossible to stop to enumerate half or a tenth part of the interesting flowers our traveller would see in his upward path. Only one or two sorts, characteristic of the different zones of altitude through which he passes can be noticed by the way. Let us suppose him to emerge from the Beech wood into the bright green pastures lying higher up. Here he will see the tall yellow Gentian, from the roots of which the medicine is made, and others of the taller sorts of Gentian, purple and spotted. Here, on a steep bank of stones, dripping with water from above, are thousands of *Pinguicula*s, and amongst them patches of the rare alpine *Pinguicula*, creamy-white, with a delicate tinge of primrose in the centre, reminding him of the hues of some miniature *Dendrobium* or *Pilumna*. Further is a flat rock matted with some small purple flower, which turns out to be *Globularia cordifolia*. Here the Grass is wet and spongy, and covered with the pink flowers of the mealy Primrose (*P. farinosa*) and the deeper crimson of different kinds of Orchises. Higher up we find the bright blue stars of another of the alpine which may now and then be found in the mountains of Scotland or Cumberland—the vernal Gentian. If he is lucky he may, in a spongy spot, find one still more brilliant of hue, like a bit of the deep blue sky above dropped on to the Grass—the precious *G. bavarica*.

Rock Plants.—Deciduous trees are now left below us, and Pine woods and slopes of stones and gravel take the place of meadows. What are those patches of crimson like marks of blood on the bare yellow gravel? They are *Saponaria ocymoides*, which seems to choose places where there is no vegetable soil, as does

likewise that most exquisitely coloured purple gem with an orange throat, *Linaria alpina*, the Alpine Toad-flax, which seems to be always found in the white pebbles and sand spread by the mountain torrent, where it emerges in its fury when the snows melt from the steep rocks through which in countless ages it has cut its channel. Our traveller is tempted to follow up the bed of this torrent, as he sees the sides of the cliff coloured crimson, and fancies he must have come upon the famed Alpine Rose, so called from its colour, though not a Rose, but a *Rhododendron*, the European representative of the family whose brilliant species are the glory of the Himalayas, the Alps of Asia. He is right. It is the Alpine Rose, and the rocky hillside is covered with it for an acre or more. A bunch as large as his head is gathered by the guide for the admiration of the tourists collected in the inn in the evening. If the rock is limestone it will be *Rhododendron hirsutum*; if it is granite, it will be *R. ferrugineum*, the leaves of the former being hairy, and those of the latter rusty. The flowers are so much alike that not one in a thousand of those who have seen them a thousand times would suspect that the two plants are distinct, the first being unable to live except on the limestone formation, and the second being equally unable to exist there. By the way, it may be remarked that this peculiarity is by no means confined to alpine Roses, and one of the secrets of culture of alpine plants is the knowledge of their native habitat, whether calcareous or not. If we continue to follow our mountain torrent towards the summit of the hill from which it rushes, we shall find at every step new floral beauty. The vegetation is now no longer sub-alpine in character, and every step we ascend shows us rarer and ever rarer gems of plants more strictly alpine. The Pine and Fir no longer grow here only the stunted *Pinus muglus*, the roots of which are higher than the tops, a statement strictly true, and a strange, weird look it gives to these steep slopes to see the boughs—trunks they can hardly be called—bending down the hill-side with the tops gracefully curved upwards many a foot below the roots, resting on the ground. But for this peculiar growth they would be shattered to pieces by the weight of the winter snows and falling stones and gravel before which they bend. Amongst their boughs, gracefully spreading its slender, woody, twining shoots, like the lianas of the tropical forests, grows the lovely greyish-blue Alpine Clematis, *Atragene austriaca*; and ever and anon the air is scented by masses of *Daphne Cneorum* where the stones are covered by the leaf mould of the decayed pins of the dwarf Pines. Here are patches of the bright yellow *Auricula alpina*, and those exquisite snow-white gems of *Ranunculus alpestris*. Higher up we have got out of this torrent gorge on to the short Grass near the mountain top. The yellow flowers of *Anemone sulphurea* here cover the ground, and sometimes the more modest bells of *A. Halleri*, resembling the sweet *Pulsatilla* of our English chalk downs. A little higher, we find large cushions of rose-coloured stemless flowers almost hiding the emerald cushions of minute leaves. On one of these the traveller may rest awhile and refresh himself.

Alpines Under the Snow.—Our traveller has now mounted some 8000 ft. or 10,000 ft., and near him the mountain is covered with the eternal snow, melting under the hot June sun, and streaming down over the Grass, drained rapidly away by the loose stones underneath, of which the hillside is composed; and now he begins to get a glimpse into the true secret of alpine flowers, and why they are so hard to grow in carefully-tended gardens, while they flourish in such glory in this icy air and on these bare, wind-swept, open mountain tops. Reflect a moment on the history of that fairy-like fringed bell which is growing at the edge of that patch of snow melting in the June sun under this cloudless sky. A month ago that lovely *Soldanella* was at rest under the snow, and had been so since the softly-falling flakes covered it last October. All winter it has been dry and warm under the snow. When I say warm, I mean it has never during that time been subjected to cold more than a degree or so below 32°, that is just about freezing point. Doubtless every practical gardener knows well what an excellent warm blanket snow is, but perhaps it may be new to some how much snow protects from cold. From experiments made in the winter at Vienna it was found that while the temperature of the air varied from several degrees above freezing point down to many degrees below zero, just under the surface of the ground where the roots of the plants are it never varied more than a degree or two, but remained about freezing point. Here, therefore, we see why alpine plants,

though at first sight they may seem to be subjected to great hardship at home, are really better protected than can be done by the cleverest gardener in the best tended garden or even greenhouse. Recollect that during this long rest they are quite dry, and we all know that a little frost does not hurt plants whose tissues are dry. It hurts them no more than it hurts a lead pipe when empty. Fill it with water, and a very few degrees of frost freezes the water and expands it, bursting the pipe. The cells of plants, if dry, are not burst by frost, but if full of moisture, the moisture is frozen and bursts the cells. This is the difficulty of cultivating alpine plants in England. It is the wet, not the cold, and the absence of a blanket of snow all winter. Then, again, recollect that this snow melts and the plant starts into vigorous life suddenly in May or June, when the days are long, and in a climate where there is a bright southern sun. Our difficulties of culture would be less if we could imitate this, by retarding growth, but we cannot. In England herbaceous plants do not go to rest so soon or so completely in autumn, and they begin to grow much sooner in spring, and after they have begun to grow they receive a severe check in our dry cold spring. If they survive this, we may have in England some sort of reproduction of the glories of the alpine flora, but only an imitation; we can never quite equal their short, but brilliant life.

After the Winter.—Another vital condition of the alpine plants at home is this: At the moment when they start into growth in the long days of late spring and early summer, when they get so bright a sun, and so many hours in the day, the ground is moist with melting snow, which, however, never for a moment stagnates, but runs through the surface of vegetable mould which lies on the sloping mountain side on the top of stones and pebbles often hundreds of feet thick. Try to dig up this cushion of *Silene acaulis*, or the Cushion Pink, on which our traveller has been resting and admiring the view and the flowers all the time we have been descanting on the conditions under which the plants grow on the Alps; we shall find innumerable small stems spreading over the surface of the ground in excellent leaf-mould, moist and cool, and a long tap-root running down deeper than we can dig, and what it runs into consists of loose stones, through which the constant supply of melted snow runs as it runs through the crocks of a well potted Orchid. The plant, therefore, has this history: It rests dry and warm all winter. In the longest days it bursts into growth, under a bright sun, with a plentiful supply of water and perfect drainage. When it has flowered and perfected its seeds, after a short life, which has never had a check or a reverse, the friendly snow comes in October and puts it to bed, warm and dry, for a long rest. What wonder that under these conditions every alpine is brighter in colour than its congeners in other climates. How are we to imitate these conditions? We will consider this by and by. But meantime our traveller is busy

Collecting.—Let us just see what he has found, and mention a few more species of special interest, and then turn our minds to the question how nearly we can reproduce the conditions of Switzerland and the Tyrol, and which plants will be most likely to repay us for our trouble. The first plant our friend has found is one of the most lovely of all—the fairy Primrose (*P. minima*), growing no higher than the Grass, but with a large, rose-coloured single flower. Next is *Androsace villosa*, umbels of white or bluish rose flowers with a yellow eye. There are hundreds of *Gentiana imbricata*, as blue as any, with a white eye. A lovely dwarf yellow *Draba* is plentiful, giving a good contrast of colour. *Soldanellas* of more than one sort are here; also a delicate yellow bulbous plant (*Gagea Liotardi*). Then there is the Glacier Pink (*Dianthus glacialis*) growing at the edge of the ice, hardly taller than the *Silene*, but with large, flat, rose-coloured flowers hiding the tiny leaves. Lastly, the choicest gem perhaps of all—*Eritrichium nanum*—of a blue brighter than any Forget-me-not, but not unlike them in general character. Here are nine of the choicest true alpine plants which I myself actually found last summer in a space not so large as a room. This will give some idea of the wealth of the alpine flora, and perhaps convince those who have yet to visit the Alps that we are not exaggerating or telling travellers' stories when we get a trifle enthusiastic in talking of them. There is one plant I must dwell on for a moment, though it is not found in the neighbourhood of those just mentioned—I mean *Phyteuma comosum*, one of the rarest and most singular, as well as most beautiful, flowers that exist. Most people are probably familiar with many of the common species of *Phyteuma*, such as *P. orbiculare* and others, which are common in the lower alpine

meadows, and some of which are natives of this country; but *Phyteuma comosum* is larger and much more beautiful than these. I was fortunate enough to find it on the Italian side of the Tyrol, growing out of limestone rocks near Feltre. It has large round glaucous leaves with sharp points, growing in a rosette out of the face of solid limestone. You have to break open the rock with chisel and hammer to get at the roots; these you find in minute cracks of the rock, which you would never perceive till the rock is broken. I have spent hours with the help of workmen and ladders in getting it out, and I succeeded in flowering it in Lancashire last summer. The best way I can think of to imitate its natural condition is to lay these roots on a flat piece of limestone, cover them slightly with lime rubbish from old mortar, and then put another flat piece of limestone over the first, tie them tightly together, and put them upright, so that the crack or joining is perpendicular. I may say, however, that Mr. George Maw, of Benthall Hall, flowered it well in a pit amongst pieces of limestone in a frame. Another very choice limestone alpine is more easily grown, namely *Potentilla nitida*, though to grow it to perfection it should, as in nature, be in deep chinks or cracks of solid limestone. Those who live in Derbyshire or Westmoreland have advantages which we have not in Lancashire, where our only rock is sandstone, and where we must construct our own rockeries as best we can. Now as to

The Culture of Alpines in the lowlands, bearing in mind the natural conditions: 1st, rest in winter, dry and not too cold; 2nd, retarding growth in spring till the days are long, and avoiding check after growth; 3rd, plenty of moisture and good drainage. A rockery should be made, raised above the ground, by making a heap of open, gritty, coarse stuff, with plenty of lumps of stone mixed, so that the water will run away, and large stones must be sunk in this, some close together, so as to leave perpendicular crevices. In these many plants will thrive that die on a flat surface. The collars of the plants never hold wet, but hang out from the upright walls. Some of the stones must be placed 1 ft. or 2 ft. apart, one behind and above the other, so as to leave beds or spaces between for plants that want space, but smaller stones should be on the surface or partly buried, so that the plants are partly protected from the wind, but not shaded, and the roots can grow under them. They like to grow against stones, but there must be nothing like the ridiculous pockets we sometimes see without, a body of soil behind connected with the general mass of earth. This is one of the commonest errors. Every plant though growing out of a crevice must be able to send its roots many feet back into the soil.

The Rockery.—The best plan to construct this is to proceed building it up piecemeal, planting the larger stones solidly, with the broadest part below, in the stony or gravelly soil of which the lowest part should consist, then filling up gravelly soil behind it, and planting another stone higher, leaving a sloping bed between the lower stone and the one behind it, not so steep that the soil will run down. When two stones are placed near together, so as to make a crevice, the broader parts of the stones should be at the bottom, so that when the soil sinks it may fill up the crevice entirely. If the crevice be wider below than above, the soil will run out and leave spaces, and when the long fibrous roots of the plants reach these they will perish. A common flower-pot is constructed on this principle, narrower at the bottom. The spaces of soil in a rockery should really be like so many flower-pots well crocked. Again, when two large stones are laid together to build up the outside of any rockery space they should be so placed that the outside edges are close together, opening wider behind like the letter <, so that when the soil naturally presses outwards it will keep the upright crevices between the edges of the stones filled up with soil. Saxifrages and many other plants grow excellently planted sideways in these crevices. The bulk of the soil of which the rockery consists being stony, the surface should be in great part of a peaty or decayed vegetable mould. But the different beds or compartments should be of various compositions, to suit different classes of plants. The main distinction should be that some must be calcareous, and some must have no soil that has the least part of lime in it. So much is this necessity dwelt upon by the growers of alpine plants in the botanical and other gardens on the Continent, such as Innspruck, where the managers are familiar with the plants in their native habitats, that every plant is distinguished as calcareous or non-calcareous. But other differences must be made to suit special plants. For instance, a

compartment may be made for the *Cypripedium Calceolus*, which at first I found difficult to establish, but have at last found easy to manage. This is one of the calcareous plants, and if we dig it up in the woods where it grows we find some inches or 1 ft. of leaf-soil at the surface, in which the collar of the plant grows, but the long fibrous roots go deep into the sub-soil, which consists of calcareous clayey soil, plentifully mixed with stones. This we can easily imitate. The *Cyclamen* also invariably has a surface of loose leaf-mould for its stems to run in, but this rests on masses of stones among which the tubers are found. Both these plants like broken shade; but here, I may remark, that in our climate the clouds generally give us shade enough, and I have often failed with plants by following too closely the directions given to plant in shady places. Full sun is best for most alpines, but I think they succeed best when they do not get the sun too early in the morning, as when the night has been frosty in spring the leaves are damaged if the sun comes on them while they have hoar-frost on them. I should therefore let the general surface of the rockery be highest at the east and steepest at the south, so that it slopes gently towards the west and north. It should slope so gently that the midday and evening sun shines fully over it, but it is better that the morning sun should not come too early on the plants, and that they should keep the moisture of the night dew well on into the morning. The south side of the rockery may be steep, and consist of large upright surfaces of stone, so that plants which like heat may hang down over them. At the lower parts of the rockery there should be flat spaces moister than the rest for such plants as *Pinguiculas*, *Orchises*, and the like. These may be easily so contrived that the moisture from the higher parts shall run on to them, and the soil should be sandy peat, but it should rest on stones or cinders, with provision for the drainage to run away, especially in winter. Besides the plants last-named, such places do well for two of the most ornamental ground *Orchises*, and the most easily grown that we have, the beautiful *Cypripedium spectabile*, which far surpasses any tropical *Cypripediums*, and *Orchis foliosa*. The former I used to plant deeply, as directed, in a regular bog or moist bed, but I found it damped off in wet summers. This will not do in Lancashire, but it succeeds well in peat with a well drained subsoil, and a small heap of ashes over the crowns in winter. These are not alpines, but may be well grown in connection with them.

Another point to notice in forming the rockery to see is that the tops of the large stones slope back towards the body of the soil, and that in leaving a horizontal crevice it is not overhung by the stone above it, or it will get no water, and no plant will live in it. When the stones are properly laid there is a shelf at the top of each, sloping backwards, which may be covered with a little soil on which the next stone rests, and a crevice between the two slopes backwards and downwards to the body of the soil. Plants placed in such crevices always do well, as their roots extend themselves along the crevices, and all moisture runs down them to the soil or gravel behind. This being attended to does not prevent its being a good thing for some plants to have a large stone overhanging them, so as to throw the rain off the collars. A beautiful Himalayan alpine, *Androsace lanuginosa*, requires this, or it damps off. Grown this way, its shoots extend and hang down the face of a stone covered with flowers which last through the summer. To keep plants dry in the winter, in lieu of the covering of snow we may put a piece of glass so as to cover them, or two pieces with the tops resting on stones. Another thing which tends to prevent plants damping off at the collar is to have small stones put under the leaves all round them, so as to keep them from resting on the soil. During frost the tenderest plants may have a covering of straw lightly spread. During the summer they should be divided and small plants kept in pots in frames for a reserve to supply the place of any that may be lost. Many plants live better for having pieces taken out of the middle. In our climate they grow in denser tufts than in nature, and are apt to die in the middle. The common *Gentianella* (*Gentiana acaulis*) is usually seen in our gardens in dense tufts with many crowns crowded together, and in this condition it is not so floriferous as when found on the hillsides in stony vegetable soil, where the crowns spread far apart and every one flowers, thousands in a space of 100 yds. To supply the calcareous soil for those spaces devoted to plants requiring it, I find nothing so good as the so-called lime-chippings of which carriage drives

are made, with lime rubbish at the top, composed of the old mortar of buildings that have been pulled down.

The Needful Soil for plants which grow on the granitic formations may be supplied by using the Jersey gravel, of which garden walks are often formed. Some plants, particularly alpine Dianthus, flourish best in coarse grit, such as is often used as ballast for vessels, and can be easily procured. In this they grow less luxuriantly, but are more floriferous, and stand the winter better. The Cheddar Pink (*D. cæsius*), which resembles the alpine Dianthus, grows well in the mortar of an old wall, and so does a lovely true alpine plant, *Erinus alpinus*, and a part of the rockery may well be made something like a wall, one stone laid flat on the top of another, with a layer of leaf-mould and lime-rubbish between, sloping back and resting on the body of the soil of the rockery, so that the moisture creeps out between the stones. Ferns grow in this like they do in the walls at the sides of hollow lanes with the soil behind them, especially such dwarf sorts as Spleenworts and Wall Rue, and the face of such a wall covered with Saxifrages and with trailers hanging down is a beautiful object. I have often admired the common English trailing Toadflax (*Linaria cymbalaria*) growing naturally on the walls of Chester, and it is equally beautiful on the top of my rockery, where there is little or no soil. On a larger rockery, with extensive perpendicular spaces of stone, Clematises may be planted at the top to hang down. This is the true way to grow this plant, instead of growing upwards up a wall. In rocky woods in Derbyshire the Traveller's Joy hangs down the face of a precipice, catching at any shrub that grows on the ledges, and looks better than in any other situation. As to watering rockeries for the growth of alpinæ, which in France and Germany is essential to success, I do not think it necessary in this climate if the rockery is made as above. All sorts of contrivances are used to supply the requisite moisture in these sunny and comparatively rainless countries—perforated pipes spreading a spray over the top, tanks kept filled, and with porous bottoms, supplying water to the plants from below on the principle of the syphon and the like; but with us, even in the spring months of April and May, which are often too dry in this neighbourhood, I find it very rarely advisable to water. The whole body of the soil of which the rockery is composed gets wet throughout in the winter, and the plants being able to grow back into it through the crevices, all of which are open at the end and connected with the mass of soil, send their roots deeper and are never dry. Made as some rockeries used to be, and still are by people who think more of attempting a ridiculous imitation of natural rocks than of the requirements of plants, watering every day would not suffice to keep the plants alive. A neighbour of mine, being pleased with the rock plants he saw flowering profusely through the spring and summer, got a splendid erection built by one of the horticultural architects who have this ambition, and as the picturesque structure of stone and mortar without soil rose higher and higher, I was called to admire, but, unlike Balaam, I cursed when I was asked to bless, or at least warned. It was completed, and a costly selection of rock plants from Mr. Ware, of Tottenham, and Mr. Backhouse, of York, was distributed in the little pockets which were provided plentifully as in a cockney's shooting jacket. They languished and were watered. They grew yellow and were watered more. They turned to hay, and that summer saw their death. The erection was then demolished, and the imitation crags of Westmoteland no longer raised themselves proudly from the plains of Aigburth. Another way to make an ugly rockery is often seen in gardens. A heap of soil is made and stones stuck in like almonds in a plum pudding. This is not so bad as the other style, for at least Ivy, Periwinkles, and London Pride may be made to cover it, but it is not the sort of thing to make alpinæ flourish. E. H.

Aigburth.

Waxed Paper.—In THE GARDEN of June 11 this paper is strongly recommended as a very efficient waterproof wrap for flowers and plants sent by post. It is very readily made, but as very few of your readers are old photographers, I will tell them how to make it. Procure any good stout writing paper; hold this paper on the face of a laundress's smoothing iron, tolerably warm, and rublump white wax upon it. No doubt this would be all sufficient for ordinary purposes, but to complete the process, each sheet should be inserted between blotting paper, and the extraneous wax absorbed by pressing with warm irons. You have thus a very elegant transparent paper.—W. H. C.

LATE NOTES AND QUESTIONS.

Grapes in Conservatories.—When should I give water to Vines whose fruit is set about a fortnight? They are growing in a centre bed of earth in a large iron conservatory where they climb over arches about 3 ft. from the top. In February I removed the soil about 1 ft. deep and laid in a layer of fresh cow manure, and after the shoots burst I gave several soakings of water, but none since. There has been no heat applied since the frosts of January. When should I give heat now so as to ripen the fruit before the autumn becomes cold? It would ripen without any heat, but the iron house is inclined to produce mildew, which a little timely warmth might prevent if I knew when to use it. The Vines are in excellent health at present.—ST. BRIDGE. [They should have a good soaking of water now, and the soil should be kept in a healthy moist condition till the fruit begins to colour, when the last watering should be given. A little fire heat from the middle of September for a month or six weeks will help forward the ripening of the crop and also mature the wood, a matter of considerable importance, for next year. In anticipation of mildew it will be well to paint sulphur on the pipes, and even light a fire and use sulphur earlier than the date I have given should that pest make its appearance.—E. H.]

Daisies on Lawns.—My Grass lawn (a small one) this year is full of Daisies, literally covered, quite white with them, and very soon after they are cut down they appear again in full force. What can I do to get rid of them? To root them up is out of the question. The lawn was made by sowing seed some seven or eight years ago.—J. W. P. [The dry weather which we have had, whilst checking the growth of Grass, has caused an undue development of Daisy blossoms. Hundreds of lawns have been in the condition just described this year, and there are no means of getting rid of them better than frequently cutting them off to prevent their seeding, and using Watson's lawn sand or a dressing of guano to stimulate the Grass into vigorous growth. The Daisy blossoms may be removed by a Daisy rake, but the plants will shortly be less floriferous, as their season of blooming will be past.—E. H.]

Cool Orchids.—I have had a plant of *Odontoglossum membranaceum* on a block since last December in a cool house. The new growths made during the early months of the year are only about a quarter the natural size, and appear to have stopped altogether now, whilst some breaks of different bulbs made lately have every appearance of making full-sized growths. The same has occurred with *O. Rossi majus* and *O. pulchellum* in pots. The temperature occasionally fell to 36° and rose to 50°. Will some Orchid grower kindly tell me if the small growth in question is natural? or how to avoid it?—G. K.

J. B. (Pinner).—The fungi sent are false Truffles or white Truffles; they are the *Tuber album* of Sowerby, but now described in text books under the name of *Choiromyces meandriformis*. This name was given by Vittadini, the Italian botanist. White Truffles are not suitable for the table; they have a disagreeable, forbidding, penetrating odour, and a taste which soon becomes pungent in the mouth and throat. We have referred to them in THE GARDEN for January 1, 1881 (p. 28).

Crickets.—Twelve months ago I erected a forcing house for the growth of Cucumbers; as soon as I started forcing I heard a cricket or two, of which no notice was taken at the time. Now the house is swarmed with them; they eat the leaves, but worst of all they bite the fruit. I should, therefore, be grateful if someone would give me a hint as to how to get rid of them.—SUBSCRIBER.

Unhealthy Palms.—I have a small Palm the leaves of which are looking yellow and unhealthy; also the tips have a scorched look. It has occasionally a little weak liquid manure. The house is kept about 70°. Does it require shade? and what moisture?—BINNY.

Curculigo.—What is the proper treatment for this? The tips of the leaves of mine have a burnt look. Do they require sun or shade? and also do they want much moisture? They are on a stage; is bottom heat necessary? The heat, as a rule, is 70°.—BINNY.

Francisceas.—I have a *Franciscea elegans* which has been covered with purple flowers; it now looks unhealthy, and is infested with a kind of white bug. The stem has also a mildewed look. The house is kept about 70°. It has occasionally a little weak liquid manure. What can I do with it?—BINNY.

Renovating Turf.—Is it a good plan to allow old turf to remain unmown for five or six weeks in May and June to strengthen the roots when the Grass appears to be rather weak?—H. B.

A White Bird's-eye Primrose.—Has any one seen a white *Primula farinosa* in cultivation? A seedling with me has come pure white this year.—J. M., *Berwick*.

Seedling Abutilon.—J. Smith.—The semi-double flower sent is a good one and an advance on its parent, *Boule de Neige*, being more showy, and if constant it will prove an acquisition. We have not seen it before.

Smilax.—Do you know a plant called *Smilax*, an American term?—D. R. [It is a name for the widely grown and graceful *Myrsiphyllum asparagoides*.]

Variegated Horseradish.—G. C.—We have seen it blotched with white, but never wholly white like the leaf sent.

Seedling Columbines.—F. M. B.—Very interesting varieties, which would be admirable if we had not the finer species, which, kept pure, are the best of all.

Seedling Pelargonium.—F. W. S.—The trust you send is a fine one, and the colour good, but the flowers somewhat poor as regards form and substance.

Melon Leaves.—Reader.—They look as if they were scalded through want of ventilation. In fine weather a little air should be left on even at night.

H. P.—All the plants you mention will succeed in a greenhouse provided the temperature does not fall below 45° in winter.

Double Pomegranate.—When and how should this be pruned?—S. M. L.

Jasminum grandiflorum.—Does this do best in a stove or in a greenhouse temperature? What is the best soil in which to grow it?—C. L.

L. M. M.—The Peach mentioned in your note has not been received.

Names of Plants.—E. W.—1, *Oncidium pulvinatum*; 2, *Alonsoa incisa*; 3, send better specimen; 4, *Adiantum caudatum*.—Y.N.S.—1, *Saxifraga lingulata*; 2, *Pellaea auriculata*.—Sub.—1, *Brassia verrucosa*; 2, *Odontoglossum læve*.—J. Bolding.—*Rhododendron myrtifolium*.—Mac.—1, *Allium Moly*; 2, *Pyrus arbutifolia*; 3, *Acetum Napellus*.—H. S., *Newby*.—Apparently a variegated form of *Epilobium angustifolium*, but cannot be named correctly without flowers. —J. W. K.—Apparently *Casuarina equisetifolia*, a greenhouse plant. —J. J.—*Xiphion vulgare sordidum* (variety of Spanish Iris).—A. J. H.—*Bromus arvensis*, Meadow Brome Grass. —E. J. E.—The duplication of the corolla in

Gloxinia is not very rare; it has frequently been alluded to in gardening periodicals.—*Mrs. F.*—*Mespilus germanica*.—*Old Sub.*—Cut-leaved Beech, *Fagus sylvatica laciniata*.—*J. C. F.*—1, *Campanula muralis*; 2, *Brodiaea congesta*; 3, *Allium Moly*; 4, *Abelia rupestris*.—*S. W. C.*—*Lilium dahuricum*; *Hottotia palustris*; *Liparis ovata*.—*G. P.* (*Pilton House*).—*Allium nigrum* var.; *Jatropha pandurifolia* (Andrews).—*J. D.*—1, *Lychnis dioica* fl.-pl.; 2, *Tradescantia virginica*; 3, *Luzula sylvatica*.—*W. H.*—1, *Anthericum Liliastrium*; 2, *Ornithogalum umbellatum*; 3, *Epimedium* sp. (send in flower); 4, *Verbascum phoeniceum*.—*H. W. E.*—*Lilium elegans* var. *staminosum*.—*R. W.*—Next week.—*Herb.*—We cannot name the plant sent without seeing flowers of it.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY.

EVENING FETE, JUNE 22.

THE annual evening fete of this Society, which took place on Wednesday last, was carried out in the usual successful manner; the weather was fine, and there was a vast concourse of visitors. The floral decorations were on the same extensive scale as on previous occasions, though there was a conspicuous falling off in the numbers of competitors in some of the classes. In that for the floral decoration of a furnished dinner table there were eight competitors. In all the arrangements the serious mistake of overcrowding was apparent, a fact which the judges wisely noted, for they withheld the first prize, and only awarded a second and equal thirds. The merit of the second prize table was chiefly owing to its not being arranged in the conventional style of vertical trumpets set in crowded basins of flowers, a fashion becoming stereotyped. The centre piece consisted of a rather flat ornamental vase furnished with a variegated *Pandanus* in the middle, and filled up with white *Marguerites*, *Stephanotis*, Water Lilies, Roses, and Ferns, while from the sides depended sprays of *Ficus repens*. The smaller vases were furnished in a similar manner, and the only bright colours on the table were Roses in small upright glasses. One of the third prize tables, by Mrs. Henderson, was furnished with choice Orchid flowers, such as *Cattleyas*, *Odontoglossums*, *Epidendrums*, *Dendrobiums*; also *Lapagerias*, Roses, Lilies, *Marguerites*, and *Pelargoniums* intermixed with Ferns, Grasses, and the elegant leaves of *Paulinia thalictrifolia*. These were arranged in a huge flat ornamented vase, too large in fact for the size of the table, as it took up a deal too much room, and, being supplemented by other smaller vases of a like description, the table looked crowded. The other third prize table, arranged by Mrs. Seale, was very light and elegant, the only fault being, if fault it be, that the vases were of the common trumpet shape. The flowers used were *Rhodanthes*, Grasses, Ferns, *Columbines*, *Dipladenias*, *Nymphaeas*, Japanese Maple leaves, and *Cocos Weddelliana* for the centres, which, however, were much too large, the leaves spreading so as to make it very inconvenient for lighting the table.

The unfurnished tables were more numerous, there being ten. None of these were out of the ordinary style of arrangement, with the exception of that to which was awarded the first prize. The arrangement in this case consisted of a large round flat bowl in the centre, lightly filled with Spanish Irises in various colours, though none were very bright; *Gladiolus Colvillei* albus, leaves of *Caladium argyrites*, *Begonia* leaves, *Brassia verrucosa*; while in the smaller sized bowls were plants of *Cocos Weddelliana*, surrounded by flowers similar to the middle vase. This arrangement was remarkable for the almost entire absence of bright colours, but there was a charming harmony of tints among the flowers used, which by gaslight showed to good advantage. Fine as was the general effect of this table, it was far too crowded, as there were no fewer than thirteen vases of flowers on such a small space, whereas half of that number would have had a much better effect; but being so decidedly out of the ordinary run of arrangement, the judges, no doubt, acted wisely in placing it first, though the inconsistency of discouraging overcrowded tables in one class and countenancing the system in another was apparent. In every case where a prize was awarded the judges were evidently influenced by novelty as regards arrangement.

The Floral Decorations for a Buffet were very poor, and no prize was awarded, the material used in the adornment being unsuitable. The arches of cut foliage and flowers were likewise not at all remarkable, except for their inappropriateness, the first prize exhibit being composed chiefly of hardy white and light-coloured flowers and Ferns and other foliage. The baskets of flowers were in some instances tastefully and lightly arranged, but many were very unsuitably furnished. Bouquets were numerous and of the usual stamp—of huge dimensions, and crowded to excess. There was a pretty example of a bridal bouquet shown for the first prize, in which the delicate tint of *Odontoglossum vexillarium* was very telling. The principal prizes for sets of six specimen glasses were given to those that were lightly furnished with Grasses, small flowers, Ferns, &c., which on the whole were very

attractive. About a dozen sets of specimen glasses were shown. Hanging baskets of plants were much below the average as regards merit. One of the standing baskets for a living-room was extremely chaste and effective; it was furnished with White Paris Daisies, *Lilium longiflorum*, and fine-leaved *Begonias*. This was shown by Messrs. Dick Radcliffe, and took the first prize. Baskets for outdoor decoration were shown by three exhibitors, but, with the exception of that awarded the first prize, were furnished with plants unfitted for our climate.

The Groups of plants for the adornment of recesses, &c., in rooms and outside of windows were much inferior to those exhibited on former occasions, and as there were only one or two exhibits in this class there was no alternative but to award second and third prizes. The wreaths of flowers for personal adornment were numerous, the prizes being given to some very light arrangements; the first was particularly elegant. An arrangement of *Erica ventricosa* flowers with a few Maiden-hair fronds took the second.

The Miscellaneous Class was not numerous, the principal exhibitors being the General Horticultural Company, who showed two splendid groups of fine foliaged plants interspersed with *Gloxinias* and other flowering plants. *Dracenas*, *Crotons*, and *Aralias* were particularly remarkable in these groups. Mr. Cullingford, Phillimore Gardens, South Kensington, showed plants of *Nicotiana affinis*, a species with long tubular flowers of snowy whiteness that open at night; also flowers of a single *Dahlia*, said to be identical with that grown by Mr. Fraser in Sloane Square in 1803.

The large tent of *Rhododendrons* from the Knap Hill Nursery, Woking, never looked better than on this occasion; the plants, being large, superbly flowered, and well arranged, made the effect under artificial light all that could be desired.

A full list of awards is given in our advertising columns.

Special Prizes.—At the Royal Horticultural Society's show on Tuesday next, the special prizes offered by the following firms will be competed for. Messrs. Carter and Co., for new Peas; Messrs. Sutton and Sons, and Messrs. Webb and Sons, for vegetables; General Horticultural Company for groups of plants; Messrs. Laing and Co., for *Begonias*; Messrs. Rivers and Sons, for fruit; Messrs. Webber and Co., for packed fruit.

Flower Show at Liege.—The Royal Horticultural Society of Liege will hold its grand exhibition in July next, commencing on the 24th and lasting until the 28th, when prizes to the amount of 11,265 francs will be given. It is of an international character, and, according to the *Bulletin d'Arboriculture*, promises to be of unusual interest.

Weights of Prize Asparagus.—For Mr. Muir's information (p. 640) it may be stated that the weight of the three prize bundles of Asparagus shown by Mr. Harwood, of Colchester, which were the best samples in the Tunbridge Wells Show, as well as in the class in which he exhibited, was 36 lb. 2 oz., being a little over 12 lbs. for each 100 heads. This fact was inadvertently omitted in the report.

Double Rockets.—Referring to the culture of these, Mr. Burbridge says, "Everyone has admired the Rockets, and I have cut the flowers for our friends in order to rest the plants, and so cause them to break into growth earlier for division and replanting—the secret of good growth in most hardy plants of this class."

Pansies Let Alone.—We have here some large clumps of Pansies two or three years old, and about 2 ft. or so across. They are dotted about here and there, are now in full bloom, and really fine. There is no comparison whatever between the ordinary year-old plants with half-a-dozen flowers and these specimens with their 50 to 100 blooms open at once. The fine and highly-bred show Pansies will not succeed thus, but many of the bedding sorts, such as Blue King, Cliveden Purple, White Bedder, and, in fact, any kind whose habit is free and hardy, will answer admirably.—T. SMITH, *Newry*.

Moor Park, Rickmansworth.—We have received a photograph of the gardener's house at Moor Park, showing the front covered with white and yellow Banksian Roses, the whole house being one mass of flower; also of the fruit room, in which Apples are keeping well up to the present time, and of the Grape room. Grapes are stated to have been bottled from December to February, the last bunches, cut on the 17th of May, being sound and plump as when first put in. Frost is excluded by burning paraffin in a lamp at night.

ALAS! Mr. Croucher informs us that *Pyrethrum Golden Feather* is planted at Alexandra Palace so as to form the letters for an advertisement of a public house!





